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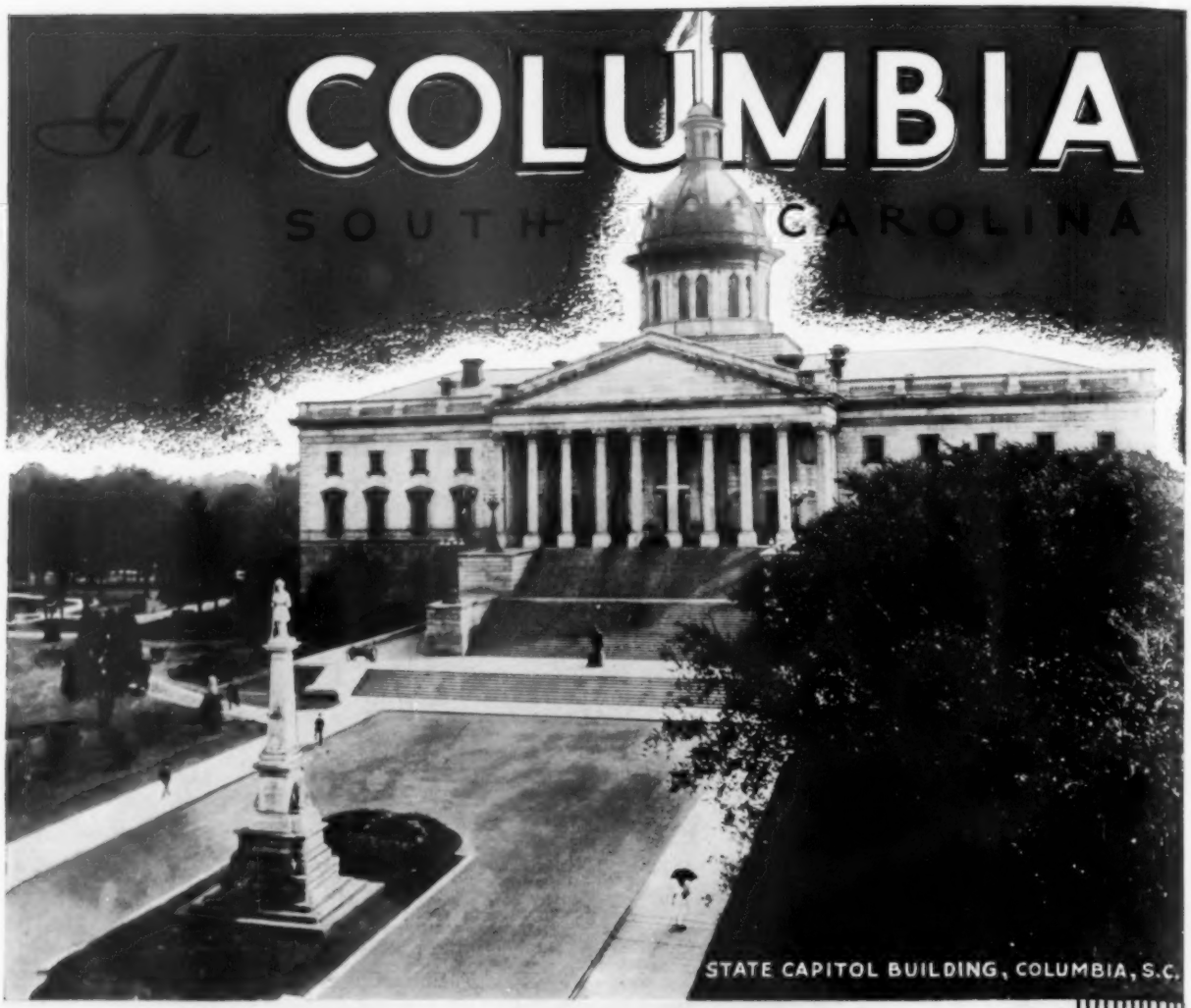

Picturesquely situated on the level top of a bluff overlooking the Congaree River, Columbia was chosen and laid out to be a capital city. Some of the largest cotton mills in the world, as well as several valuable granite quarries and cotton plantations make it one of the South's leading manufacturing and agricultural centers.

Its citizens may justly feel proud of their Water Department, unexcelled for its abundant health-giving supply and capable management under the City Engineering Department. To Columbia, the success of universal metering is not a new story for in 1898, in order to avert a water famine, the Water Commissioners adopted a full meter system, installing 1800 Pittsburgh Meters. Today, 37 years later, the records show 10,500 services all Pittsburgh Metered.

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Construction and Maintenance Must Go On

PWA Allotments

DURING the last week in September the big items of news from Washington were Mr. Roosevelt's departure on his western trip and the greatest spurt of the year in Presidential approval of PWA and WPA projects, summarized by Administrator Harold L. Ickes:

"The President has approved 3,340 additional PWA projects and has allotted an additional $200,139,037 in grants representing a Governmental contribution of 45 per cent toward the total cost of the projects.

"PWA now has received grant allotments amounting to $316,358,296 for 3,962 projects under the $4,000,000,000 work-relief program.

"More than half of the grant allotments in the $200,000,000 list just approved by the President are for buildings, with schools predominating.

"The $200,139,037 in grants will be supplemented by loans from the PWA revolving fund amounting to $88,701,481.

"Of the 3,340 new PWA projects, 1,931 are schools, 139 hospitals, 120 disposal plants, 385 water works, 155 sewer systems and extensions to sewers, 77 electric power plants, 12 gas plants, 56 highways, 86 city streets, 27 municipal buildings, 11 libraries and 28 charitable and penal institutional buildings."

WPA Gets Lion's Share

ON September 23 the President signed the following Executive Order:

"*Whereas*, I find it necessary, in order to effectuate the purposes of the Emergency Relief Appropriation Act of 1935 (Public Resolution No. 11, 74th Congress), to increase by $800,000,000 the limitation of $900,000,000, contained in clause (g) of section 1 of the said Act, on the amount which may be expended under the Act for loans or grants, or both, for projects of states, territories, possessions, including subdivisions and agencies thereof, municipalities, and the District of Columbia and self-liquidating projects of public bodies thereof:

"*Now, therefore*, by virtue of and pursuant to the authority vested in me under the said Emergency Relief Appropriation Act of 1935, it is ordered that the said limitation be, and it is hereby, increased from $900,000,000 to $1,700,000,000."

Of this substantial total of $1,700,000,000, Works Projects Administration projects, rather than PWA projects, are to get the lion's share. Notwithstanding that fact, approval in Washington of lists submitted by State Works Projects Administrators apparently means that funds actually available will provide for only about one-half of the projects thus approved. Administrator Harry L. Hopkins wrote to State Administrators:

"We have attempted to secure final approval of approximately twice as many projects as can be financed out of available funds. This has been deliberately done so as to afford you a maximum of latitude in operating your programs by insuring that you have instantly available approved projects of every character. It is obvious, therefore, that you cannot prosecute every project. Approval merely constitutes authority and does not mean you must start the work. You are expected to utilize these projects to meet the need for employment that exists in each locality, choosing from among the approved projects those which require the number and particular classes of workers that are available from the relief rolls.

"The obligation and responsibility thus placed upon you is tremendous. Within the limits of human ability you *must provide employment* for all eligible workers; you *must* complete projects, or project units, once begun; you *must* so plan your material purchases that no project need be delayed for lack of it, and yet you *must* not accumulate surpluses of unneeded materials.'"

PWA Housing Projects

A TOTAL of 37 slum-clearance and low-rent housing projects with allotments amounting to $98,843,000 will be developed by the PWA Housing Division as its part of the new Works-Relief program, Administrator Ickes announced on September 28. According to the release:

"The allotments of $98,843,000 plus a reserve fund of $1,350,000 brings the program of the Housing Division financed from the new Works-Relief funds to $100,193,000.

"In addition, the Division will continue the development of seven housing projects with allotments of $18,054,000 financed from the original PWA fund. It also will continue to supervise the seven limited dividend corporation housing projects which have been completed or are now being finished, for which allotments were made totaling $12,641,000.

"The projects which have been approved for development as the total program of the Housing Division are in an advanced status and can be under construction prior to January 1, 1936. All other projects which have been under consideration by the Housing Division will be suspended, because, on the basis of the showing made, it would be impossible to get work started within such a time as would permit completion of the program by about January 1, 1937."

Planning Must Go On

BOTH elation and disappointment have resulted in large measure from the decisions of the President and of the Administrators, as above summarized: elation on the part of local governments whose projects are being finally approved for PWA or WPA allotments; and serious disappointment for many municipal and county officials whose applications have not had favorable consideration.

To the latter group THE AMERICAN CITY urges that every possible effort be made to finance from current budgets the construction of needed projects which normally would be undertaken by local governmental units. Where tax limits or other conditions absolutely preclude immediate local financing, provision should be made, if possible, for inclusion of such projects in 1936 budgets or through the issuance of bonds. Where neither of these sources is adequate for urgent needs, the preparation and perfecting of plans should nevertheless continue. Some additional appropriations for local public works will undoubtedly be made by the 1936 session of Congress; and plans carefully prepared will stand a much better chance of approval than those hastily thrown together to meet next year's emergency.

Whether financed by local, state or Federal funds, *construction and maintenance must go on.*

Nation-wide Abatement of Water Pollution Urged

SIX definite recommendations leading to a program for the abatement of water pollution on a nation-wide scale were made public on September 30 by the National Resources Committee. The program aims at interstate control on the basis of drainage areas where possible, the simplification and coordination of state laws, broader authorization and adequate funds for research, the institution of a cooperative program of investigation to be carried on by legally constituted state agencies acting together with an appropriate Federal agency, and the holding in abeyance of changes in Federal law until experiment with a demonstration unit has indicated whether or not changes are desirable and feasible.

The demonstration unit recommended by the Committee would be a Potomac River Conservancy District to serve as a research unit in cooperation between West Virginia, Virginia, Maryland, Pennsylvania and the Federal Government.

After all ...
It's Results that count!
LAYNE
AND BECAUSE of its unparalleled, 50-year record for giving guaranteed results, today's far-flung Layne water supply organization is the first choice of the world's industries and municipalities that demand supply systems which assure more water at less cost.
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and WELL WATER SYSTEMS

Our Municipal Notebook

Is Your System of Municipal Accounting Modern? or Archaic?

A QUESTIONNAIRE sent to all cities of 10,000 or more population asking number and types of business machines used by them, brought inventories from 382 cities showing a total of 4,679 machines in use.

The excellent line of machines used by some of the cities—widely separated—is an inspiration to what is going to be done in this field in the way of equipping municipalities with methods and the appliances which those modern methods of accounting, bookkeeping, billing, and reaching the public necessitate.

The deficiencies are as striking, in their way, as the numbers of machines used. Of 347 of the cities tabulated:

146 do not use either mimeograph or multigraph machines
228 do not use billing machines
251 do not use accounting or bookkeeping machines
339 do not use photostating machines

While there are no figures regarding the cities that did not send figures, the Bureau of Governmental Research of one of them, New Orleans, said this on August 7:

"The accounting system is so backward that the commissioner of finance must request financial information from an outside auditor rather than from the city's own accounting department. Two sets of books are maintained, one by the accounting division which is of little value, and the other by the auditor, upon which the officials must rely. Furthermore, modern methods of accounting and bookkeeping are not used. All the work is done by hand."

		Number
1.	Adding Machines	
	Hand-operated	1,060
	Electric-operated	826
2.	Accounting and Bookkeeping Machines	192
3.	Addressing Machines	238
4.	Billing Machines	170
5.	Comptometers	129
6.	Other Calculators	318
7.	Check Signers	111
8.	Mimeographs	261
9.	Multigraphs	42
10.	Graphotypes	53
11.	Folding Machines	3
12.	Stamping Machines	82
13.	Dictaphones	19
14.	Ediphones	57
15.	Photostating Machines	11
16.	Photographing Outfits	80
	Other	75
		3,727

Since these figures were compiled, 29 additional cities have sent in returns. In all, some 4,680 business appliances are used by these 382 cities reporting. The extent of the possibilities in this field of modernization is indicated by both the returns and the silences.

Why the Trolley Bus

THE largely obsolete street-railway system of the United States has an invested capital of four billions, of which one billion dollars is in rolling stock—the principal point of contact with the public. The job of the executive is to show an adequate return on the investment, which is only another way of saying that he must be economical while at the same time he attracts as many customers as possible.

"In my opinion," said Vice-President H. L. Andrews of the General Electric Co. to the members of the American Transit Association on September 24, "modern electrically propelled vehicles, . . . the trolley bus or electric coach, are the best equipment with which you can meet the obligations of an ideal transportation system. The electric coach provides a means of utilizing the 20 per cent of invested capital—distribution and conversion equipment—which would be scrapped if other means of transportation were used.

"I wonder if these companies appreciate that equipping even a short line with ten electric coaches retains a customer whose annual power purchase equals the revenue obtained from the use of 150 hot water heaters, or 240 ranges, or 450 refrigerators, or 6,930 washing machines."

Continual decrease in price and weight is promised through the purchase of standard busses in reasonable quantity.

Municipal Abattoirs

A NUMBER of cities are contemplating the desirability of establishing municipally owned slaughterhouses in order to market locally the live stock raised in the vicinity of the city. The saving is in shipping costs of the cattle and in freight and express costs on the meats sent back to the city. Albany, Ga., has built an abattoir. Winston-Salem and Memphis have financed one each. Charlotte, N. C., is discussing the proposition, and Hickory, N. C., also is interested. It is of course clear that this is not an amateur's business, but one to be carefully studied before deciding to go into it. Below are some cities with experience in this activity.

Tuscaloosa, Ala.
Troy, Ala.
Miami, Ariz.
Fort Smith, Ark.
Bridgeport, Conn.
Hartford, Conn.
New Britain, Conn.
Albany, Ga.
Savannah, Ga.
Rushville, Ind.
Baton Rouge, La.
Alpena, Mich.
Petoskey, Mich.
Chisholm, Minn.
Fairbault, Minn.
Hibbing, Minn.
Virginia, Minn.
Greenwood, Miss.
Atlantic City, N. J.
Charlotte, N. C.
Greensboro, N. C.
High Point, N. C.
Raleigh, N. C.
Grand Forks, N. D.
Devil's Lake, N. D.
Easton, Pa.
Waynesboro, Pa.
Wilkes-Barre, Pa.
Woodlawn, Pa.
Anderson, S. C.
Charleston, S. C.
Newberry, S. C.
Orangeburg, S. C.
Sumter, S. C.
Union, S. C.
Dyersburg, Tenn.
Beaumont, Texas
Brownsville, Texas
Paris, Texas
Port Arthur, Texas
Taylor, Texas

How Up-to-Date Is Your Town?

FROM time to time, on cover and reading page, THE AMERICAN CITY presents specimens of laudable municipal architecture—city halls in the latest Colonial styles, fire houses worthy to be Hollywood villas. A recent study of the possible relation between the municipal use of business machines and the size of the tax rate indicates an inverse proportion. Correlation of architectural and interior decorating taste with the tax rate might, it is merely suggested, develop the mystifying fact that the greater the two, the smaller the third. Old and ugly buildings, bare and depressing inside, uneven pavements and scanty street light, out-of-date fire apparatus and open garbage trucks, all may look like economy; but they raise the question, spoken and unspoken: "What do they do with the money?"

Fire Department Collects Taxes from President Roosevelt

AN interesting fact, not generally known, is that both the fire protection and water supply for President Roosevelt's home town of Hyde Park, N. Y., are under the jurisdiction of the Hyde Park Fire Department, created by an act of the New York Legislature in 1860. As brought out in James C. Harding's article elsewhere in this issue, the Fire Department collects its own taxes and does such a good job that uncollected 1934 taxes in October of that same year totaled less than $30. Here is a suggestion for other small municipalities struggling with delinquent taxes. Why not put the Fire Department on the job?

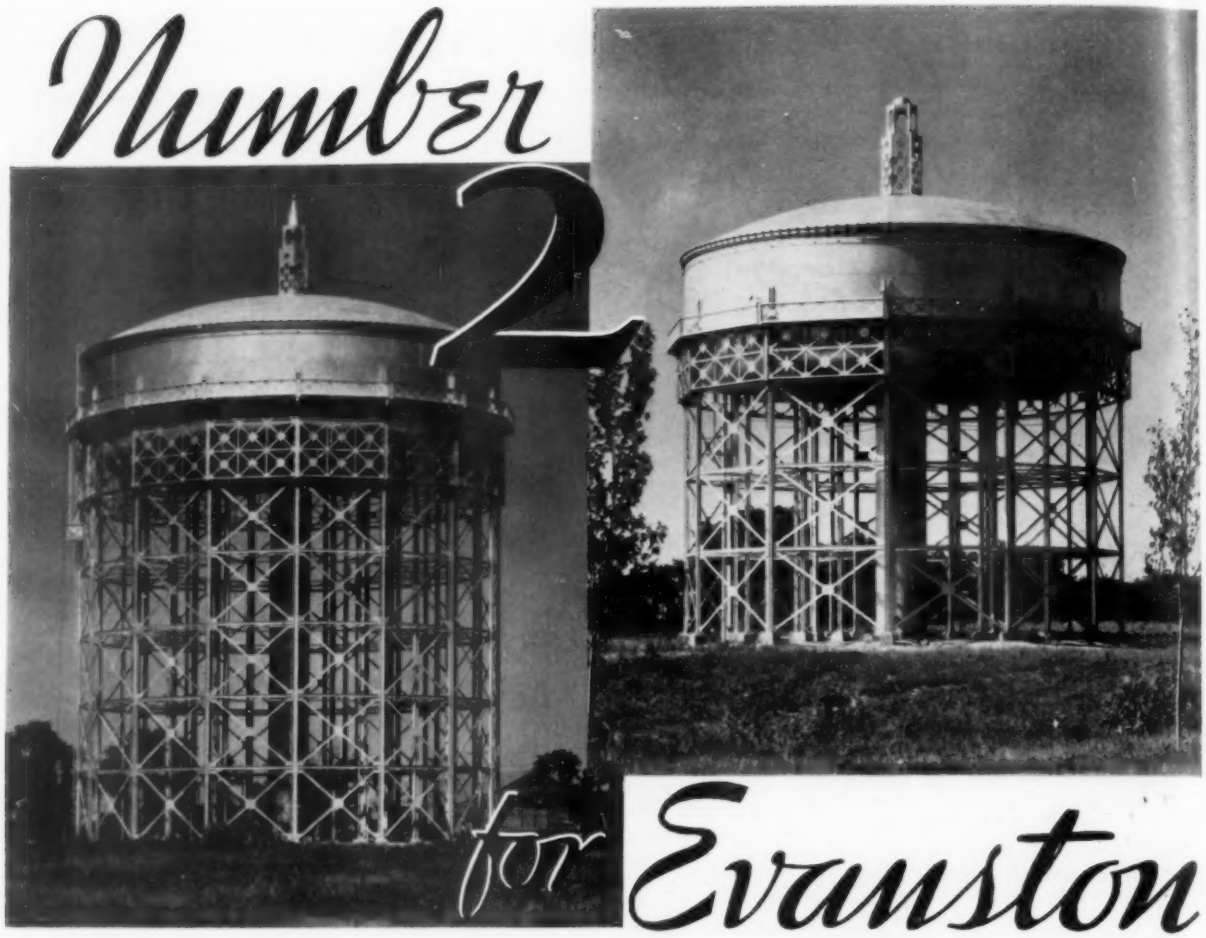
Fire Department Records

FIRE department records provide a log of company and composite activity and the data from which better methods of fighting and prevention are evolved. There are so many items that can be tabulated that these records can easily become complicated. The National Board of Fire Underwriters furnishes a book of forms 10¾ x 18¾ inches for entering daily the basic figures on fires. A system of card records combined with a looseleaf ledger has been developed by Lieut. A. W. Espey, Chief inspector, Fire Prevention, Elmira, N. Y., who writes that a number of officials have made inquiries about his system.

Police Radio Produces

AFTER radio was installed, Los Angeles arrests increased 83 per cent, according to the *U. S. Municipal News*, and Long Beach car thefts dropped 50 per cent. In Worcester, breaking, entering and larceny arrests increased.

Number 2 for Evanston



Three years ago the City of Evanston installed its first elevated tank—a Horton radial cone-bottom, shallow-depth design with a capacity of 1½ million gallons. This tank improved pressure in the southwest section of the city, opposite the main business section from the pumping plant, reduced pumping costs and provided needed storage for emergencies.

Now the City of Evanston has installed its SECOND large tank, shown at the right. The new one, with a capacity of one million gallons is similar in general design to the first. Located in the northwest section of the city, it carries still further the general plan of equalizing service pressures and minimizing operating costs. The two tanks store water at the same elevation (a necessary feature of a two-tank system) although a difference in the ground level makes the new tank only 47′6″ high (to bottom) as compared to 92′6″ for the first one.

The advantages of Horton shallow-depth elevated tanks appeal to any city needing improved distribution. Ask our nearest office for the experience of other cities with such tanks or cost data for estimating purposes.

CHICAGO BRIDGE & IRON WORKS

Chicago.....2147 Old Colony Bldg.
New York.....2147-165 Broadway Bldg.
Cleveland.....2204 Rockefeller Bldg.
Detroit.....1514 Lafayette Bldg.
Philadelphia.....1616-1700 Walnut St., Bldg.
Boston.....1517 Consolidated Gas Bldg.
Birmingham.....1536 North Fiftieth Street
Dallas.....1241 Dallas Athletic Club Bldg.
San Francisco.....1054 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1606 Thompson Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

Fabricating Plants at Birmingham, Chicago, and Greenville, Pa.

Warnings to Water Wasters - Chlorination vs. Typhoid

One Cent for 750 Glasses of Water—But Don't Waste Either

FEW customers realize what they get for the small amount of money they pay for water used. The public water supply is the cheapest commodity money can buy. In Akron, for example, for the average price which the consumer freely and unquestioningly pays for a soft drink or a cigar, the Bureau of Water Supply delivers almost 235 gallons of pure water to his home under good pressure, by day and night, Sundays and holidays. In other words, a ton of water delivered in the basement, the kitchen, the bathroom, or on the lawn, costs 5 cents.

For the one-cent sales tax, now so common throughout the country, which the ordinary person pays on his 10-cent purchase, he can and does receive 750 glasses of pure, wholesome water.

It happens not infrequently that water bills may be larger than necessary because of wastage, which can be traced and remedied. Needlessly high bills caused by waste are expensive not only to the customer, but to the Water Department as well, for they lead to expense incurred in verifying meter readings, answering complaints and letters, and in lengthy explanations. And they often lead to dissatisfied customers.

Use of water is recorded by a water meter, which, although much maligned by wasteful consumers, nevertheless is a dependable instrument for measuring and registering water passing through the service line on which it is installed. All meters, before being installed, are tested for accuracy in accordance with the standards of the American Water Works Association.

When water bills are larger than usual, there is always a reason. There seems to be a general belief among consumers that the inaccuracy of water meters causes the majority of exceptionally high water bills. This is far from true, for of hundreds of thousands of meters tested by the Akron Water Department, less than 1 per cent have exceeded the allowable variation in accuracy, and these few by an exceptionally small amount.

Assuming that the meter is accurate, which is usually the case, the most common cause of excessive use of water is found to be in defective toilets in which waste may occur at the overflow pipe; worn shut-off ball, or through the sticking or corroding of other working parts. Other sources of waste may be found in defective faucets; failure of refrigerating equipment to regulate the flow of water properly, fixtures out of order; carelessness in shutting off outlets, and underground leaks in piping.

Even a small leak may be costly. A continuous leak of only 1/16-inch in diameter under the average water pressure in Akron would consume in excess of 22,500 gallons of water per month, or 9,000 cubic feet per quarter, representing $14.40 worth of water at the present rate. This is four times as much water as the average family needs for all legitimate purposes in a 3-month period. Larger leaks are of course more expensive. The reasoning is clear that, no matter how small or how large the leak, it is good policy to correct the cause at once or the inevitable large bill will result, for the meter does detect and record leaks.

W. R. LaDue,
Acting Superintendent of Water Works,
Department of Public Service.

Moral

Water may be free when it comes from the heavens, but it travels a long road from there to your faucet. Many materials, many hands and much money are contributed in the service of furnishing you with fresh, clear, and safe water. Do not waste it.

Tom Banks Tells Them Via the Bulletin Board

IN the office of the Oklahoma City Water Department where most consumers regularly pay their water bills, T. G. Banks, Superintendent and Engineer of the Department, maintains a very interesting bulletin board. The display is changed each month and ranges from photographs of work under way to attractive pictures of different parts of the water-works system and timely letters addressed to the consumers in a more or less personal vein.

This year when we visited Oklahoma City, which we called our home town 25 years ago when the water works were nothing to be proud of, we found the following letter posted on Tom Banks' bulletin board. It is the perfect answer to the man who objects to meters "because water ought to be free."

WATER IS STILL FREE

IF you care to go down to the river, dip it up, carry it home in a jug and take chances on the contamination to which it has been subjected.

It is the cost of handling and delivering to you, to your lawn, your bathroom, kitchen or wherever the pipe may lead, ready at the turn of a faucet for instantaneous use, that makes it necessary to pay water bills to your municipal government under whose direction this service is performed for the community.

The Oklahoma City Water Department, charged with the task of collecting water during periods of plenty for use in time of drouth, purifying it for human use and delivering it to you as well as providing it in quantities and at pressures suitable for fire protection, not only does this but—

Its chemists maintain a constant guard, checking the city water hourly to keep it safe and free from disease-bearing germs, thus also acting as watchdogs over the health of the community.

Although quality of service is the first consideration, the Oklahoma City Water Department operates as a solvent utility, not only paying its own way, but showing a legitimate profit in its operations for its stockholders, the people of Oklahoma City.

Do You Know?

That in a thousand gallons of water furnished to you, a service rendered commonplace by reason of its dependability, in addition to the removal of a large portion of the unnecessary minerals it contains, filtering and sterilizing it, the delivery has required more than 2,000,000 foot-pounds of work?

That the cost to you is *five cents per ton*? Where else can you get more for your money?

T. G. BANKS,
Superintendent and Engineer, Oklahoma City Water Department.

The Effect of Filtration and Chlorination on the Typhoid Rate

A STRIKING illustration of the effect of filtration and chlorination on the typhoid rate of a large American city is illustrated in the following material from a recent Buffalo, N. Y., report. The Horseshoe Reef tunnel for Buffalo's supply was completed in 1913, and the Ward pumping station was constructed between 1909 and 1915. Prior to that time the water had been secured from the river intake at the foot of Massachusetts Avenue. The typhoid fever cases reported in each fifth year, which is taken as typical, back to 1900, are as follows:

Year	Population	Cases	Cases per 100,000 Population
1900.....	352,387	323	92
1905.....	400,000	384	93
1910.....	423,715	416	98
1915.....	461,887	259	56
Average...	409,497	345	84

Raw water was thereafter, until 1926, furnished to the consumers, but from the purer tunnel supply, with the result that from 1918 to 1925 inclusive, with an average population of 517,921, there were 84 cases per year, or only 16 cases per 100,000 population.

The filtering and chlorination units were put into operation on July 23, 1926, resulting in an almost constantly decreasing annual case rate:

Year	Population	Cases	Cases per 100,000 Population
1927.....	550,000	43	8
1928.....	555,800	42	8
1929.....	559,330	22	4
1930.....	573,076	35	6
1931.....	579,953	28	5
1932.....	587,201	22	4
1933.....	594,448	18	3
Average.....	571,401	30	5.3

As always, credit for reduction in typhoid rates should not be taken entirely by one department. The cooperation of the Department of Health in its own field was acknowledged in the report from which this material was taken.

—From "Just a Moment—" published by the Buffalo Municipal Research Bureau, Inc.

Listen to the Voice of Firestone — featuring Margaret Speaks, Soprano, with the Firestone Choral Symphony, and William Daly's Orchestra— every Monday night over N. B. C. Nationwide Network

HOW GROUND GRIP TIRES REDUCE YOUR OPERATING COSTS AND GIVE YOU THE GREATEST TRACTION EVER KNOWN . . .

HERE is the tire that will take your equipment through any kind of going, over any unimproved roads, in any weather. It gives you greatest traction ever known, and you do not need chains, even in mud or snow.

Firestone patented construction features make it possible for Firestone to build this tire. The body is built with Gum-Dipped High Stretch cords. Gum-Dipping is a Firestone patented construction feature which soaks and coats every strand of every cotton cord with pure liquid rubber. This makes the body of the tire stronger to withstand the stresses and strains of the extra pulling power of the Ground Grip Tire.

The massive super-traction tread is locked to the cord body by two extra layers of Gum-Dipped cords under the tread (patented).

The tread is scientifically designed so that it is not only self-cleaning, but it does not bump when used on paved roads.

See your nearest Firestone Auto Supply and Service Store or Firestone Tire Dealer. Start reducing your operating costs today.

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GROUND GRIP
Gum-Dipped

6.00-20 . . .	**$16.95**
6.50-20 . .	**21.95**
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32x6 TRUCK TYPE	**27.65**
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Other Sizes Proportionately Low

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Do you mention THE AMERICAN CITY? Please do.

Street Construction and Maintenance — Welding

Stabilization Possible with Relief Funds

IMPROVEMENT of secondary or farm-to-market roads by the soil stabilization method is one type of construction that can be successfully carried on with work relief funds under the $1,400 per man-year ruling, according to a cost estimate of a typical project prepared by the Calcium Chloride Association. Applying the prescribed formula for determining the number of man-hours required, the estimate shows a labor cost falling within the proportion required by the labor provisions of the Emergency Relief Act. This would therefore permit a 100 per cent Federal contribution for projects of this nature from the funds allotted for secondary road construction.

The figures used in the detailed cost estimate contemplate the use of hand labor in all possible operations, particularly at the pits, and are accordingly higher than if modern labor-saving equipment were used. At the same time the costs are not at all exorbitant, recognizing the intent and purpose of the relief measures.

An illustrative example follows:

100 PER CENT FEDERAL CONTRIBUTION
DETAILED TYPICAL COST PER MILE

	Labor Cost	Total Cost
Ditching and shouldering..... This item (wholly labor) possibly much greater through widening, grading and improving curves as necessitated by increased traffic requirements and base for future improvement	$400	$400
Gravel, 1,000 cu. yds. per mile Contemplates hand labor methods in local pits	1,000	2,000
Soil fines, 200 cu. yds. per mile	150	300
Mixing, shaping and rolling..	32	150
Watering	12	50
Calcium chloride, 10 tons per mile	16	300
Estimated total cost per mile	$1,610	$3,200

Required number of man-hours of employment,

$$\$3,200 \div \frac{1,400}{1,560} = 3,564$$

Estimated average wage, $.45 per hr.
Required labor cost, .45 x 3,564 = $1,603.80

Welding Saved Cleveland Bridge Damaged by Corrosion

THE fifty-year-old bridge which spans the Erie Railroad tracks at East 34th Street, Cleveland, Ohio, was damaged by the hot corrosive gases discharged by locomotive smokestacks to such an extent as to seriously weaken it. The badly corroded stringers were strengthened by arc welding at a saving of $10,000 to the city over the cost of replacing the stringers.

Old, badly corroded portions of the stringers were chipped away to expose sound metal. Lengths of steel plate were then inserted between the stringers and welded in place, and the openings filled in with weld metal. After the stringers were welded, smoke plates were welded to the top and bottom to protect the stringers from further corrosion. This work required a total of 500 feet of welding. Only by welding was it possible to repair the bridge without practically dismantling it and erecting extensive falsework beneath to protect the structure while repairs were in progress.

Work on this bridge was seriously handicapped by passing trains, according to Paul Simon, of the Ohio Machine & Boiler Company, contractors for the work. In order to prevent accidents, it was necessary for one man to stand by and warn the welders, who worked from ladders. So great was the force of locomotive exhausts that welding cable, wire brushes, etc., had to be tied down. The bridge was repaired for the Department of Bridges and Docks of the city of Cleveland by the Ohio Machine & Boiler Co., using Lincoln Electric Co. equipment.

Dustless Streets Through Stabilization

STABILIZATION of gravel streets in Lansing, Mich., is not only providing surfaces of greatly improved driving quality, but is saving about 16 per cent of the cost of keeping them dustless, according to J. C. Brandimore, Superintendent of Public Works for that city.

Having used both sprinkling and calcium chloride to combat the dust nuisance on ordinary gravel streets for several years, Mr. Brandimore now finds that calcium chloride stabilization provides a surface more effectively and economically maintained. According to his records, stabilized streets can be kept dustless with applications of calcium chloride totaling about $12.50 per block per year. Sprinkling, generally required three times a day, costs about $15 per block per year, and if sufficient water is used to lay the dust thoroughly, it tends to form in small pools which start holes, thus increasing maintenance expense. Blading operations are reduced about 75 per cent on the stabilized street compared to ordinary gravel, the Lansing Department of Public Works finds.

In stabilizing, the existing gravel surface is scarified and is thoroughly mixed with dry pulverized clay and flake calcium chloride. It is then sprinkled, shaped and compacted. The resulting surface preserves the dust-laying properties of calcium chloride much longer than does an ordinary loose gravel street, and requires fewer applications.

The first stabilized streets in Lansing were constructed last year. This year the program is being extended, and by stabilizing certain groups of streets, sprinkling is being eliminated in these sections.

Repairing Macadam and Brick Pavements

FOR a number of years the Street Department of the village of Oak Park, Ill., has followed the policy of repairing the breaks, depressions and irregularities in the surface of waterbound macadam pavement with stone and asphalt binder, and a seal coat of asphalt and gravel over the entire surface. All the macadam pavements in the village have been treated in this manner and are now in excellent shape, giving the appearance in many instances of sheet asphalt pavements.

In a number of cases the seal coat given to the pavement has been in use for several years and there has been practically no maintenance except for small breaks in the surface. A total of 10,560 square yards of macadam pavement was repaired at a total cost of $4,430.55 during 1934.

RIVERSIDE DRIVE ON THE BANK OF THE SUMIDA RIVER, TOKYO, JAPAN
The new Kototoi Bridge can be seen in the distance

RALPH C. WYATT SAYS:

"We have been using Mathieson Chemicals for Twenty Years"

Ralph C. Wyatt, Superintendent of the City Water Works at Danville, Ky.

FEW people are charged with a greater responsibility than that of the water works man—the responsibility of guarding the health of an entire community against the ever-present hazard of water-borne disease. Knowing the importance of their job, it is no wonder that water works men appreciate dependable chemicals and dependable service.

That is why, of course, the City Water Works at Danville, Kentucky, has been so long a user of Mathieson Chemicals. Mr. Wyatt, the superintendent, says: "We have been using your products in our water works for about 20 years now and in that time have found both the products and your service to be entirely satisfactory."

"We use both chlorine and ammonia in the filtering plant and for the past two years have also been using HTH. This latter product is used for sterilizing all new pipe lines and construction and we keep a supply on hand as a protection against any breakdown of the chlorinators."

"In addition we use quite a bit of HTH in helping out people in the vicinity who have their own water supplies. We continually are called on to advise such persons about sterilizing their water or clearing up some contamination and we have found HTH particularly effective in this work."

A 72-page handbook on water purification by W. L. Savell is available free of charge to city officials and engineers. This book, "Hypo-Chlorination of Water" (Second Edition), contains nearly 50 illustrations and shows up-to-date methods and equipment. It tells you what to do under both ordinary and emergency conditions—and how to do it. Send for your copy today.

The MATHIESON ALKALI WORKS (Inc.)
60 East 42nd Street **New York, N. Y.**

Soda Ash . . . Liquid Chlorine . . . Bicarbonate of Soda . . . HTH and HTH-15 Caustic Soda . . . Bleaching Powder . . . Ammonia, Anhydrous and Aqua PH-Plus (Fused Alkali) . . . Solid Carbon Dioxide.

Street Cleaning and Snow Removal

Dodge City, Kans.

THE streets of Dodge City are cleaned with an Austin motor pick-up sweeper and a Studebaker flusher. Other motor equipment includes a Caterpillar Thirty tractor.

From 2 until 6 A. M. cars are supposed to be off the streets in the business district. The question of night parking is left to the City Marshals. Residence streets are cleaned in the daytime, when parked cars are at a minimum.

To clean catch-basins the tops are removed and they are flushed with water and the heavier material removed with scoops.

ALEX MULLENDORE,
Superintendent of Streets.

How Clean Are Your Streets?

What method of street cleaning do you use?
What motor equipment have you?
How do you handle the "parked-car" nuisance?
How do you clean catch-basins?

Ogden, Utah

THE methods we use in cleaning our streets are not as up-to-date as we should like, but we are making the best of what we have. We use flushers, white wings and a crew running water in the gutters and sweeping with brooms. The only motor equipment we have is two 5-ton flushers, one a White and the other a Mack, and four Ford and two International 1½-ton trucks.

We have just as much fun with the parked-car nuisance as anyone else, and if anyone has a good remedy for it, I should like to hear about it. We try to keep the cars out of the gutters and in the parking zones and out of non-parking zones, but all in all there has not been much success.

Our catch-basins are so constructed as to require shoveling them out with hand labor, but in some cases we are able to flush them clean.

B. Y. HARBERTSON,
Superintendent of Streets.

Colorado Springs, Colo.

PUSH-CART and hand-broom men are used to clean the streets in the business district in the daytime. A power sweeper is used in both the business and the residential district from 10 P. M. to 6:30 A. M. The business district is also flushed weekly in summer. The motor equipment consists of an Elgin 1926 Model A pick-up sweeper and a Municipal Supply Co. Studebaker flusher on a Class B Liberty truck.

An ordinance prohibits all-night parking on paved streets, which is most helpful to the street-cleaning forces.

There are very few catch-basins in Colorado Springs. They are mostly inlets leading directly to the sewer. The catch-basins are cleaned by hand.

C. H. BRYSON,
Superintendent of Streets.

Winchester, Mass.

STREET cleaning is all done by hand brooms. The motor equipment in the Department used to supplement the hand labor consists of one White 2½-ton dump-truck, one Brockway 2-ton dump-truck, two Dodge 1½-ton dump-trucks, one Ford 1½-ton dump-truck, one Chevrolet 1½-ton dump-truck, one Reo 1½-ton dump-truck, one Ford pick-up truck, two 5-ton tractors, one Barber Green snow loader, and one Buffalo-Springfield 14-ton road roller.

Parked cars are taken care of by the police regulations, so that not much difficulty is experienced by the street-cleaning crews.

Catch-basins are all cleaned by hand labor.

PARKER HOLBROOK,
Superintendent of Streets.

Snow Removal on City Streets

THE removal of snow and the treating of slippery streets during the winter months to make them safe for driving is one of the major duties of the Street Cleaning Section of the Highway Division of Akron, Ohio.

The change of weather is carefully watched at all hours of the day and night. As soon as a slight fall of snow is apparent, the entire street-cleaning organization is called out to man the trucks, get them loaded with salt, and radiate out into the various sections of the city to eliminate slippery conditions of the numerous hills. Often 100 tons of salt is spread over the streets in an 8-hour period. The salt is produced in the Akron area.

When a snowfall of 2 inches or more has occurred, the salt is no longer effective, and trucks are sent to the downtown business sections to remove the snow. The snow-plows are also ordered out when the snow has reached a depth of 2 inches. Each driver of a plow is given a list of streets he is to work, so that overlapping is held to a minimum.

The Street Cleaning Section has four plows available, and eight bladers from the Street Repair Section are placed in service. The Street Repair Section is also called on to supply labor and extra trucks for the removal of snow. This teamwork was made possible when the two sections were consolidated under one head early in 1934.

The removal of snow is greatly hampered by parked cars in the business sections of the city. Every available parking space is thus occupied, preventing the use of a mechanical loader, and the snow must be shoveled out from under the cars, which slows up the work. When necessary, extra labor and trucks are hired to supplement the regular city crews.

During the week of February 4, 1935, when 5 inches of snow fell over night, 200 extra laborers were hired, who worked an average of 10 hours each. Twenty-two privately owned trucks were hired, for an average of 10 hours each. Some extra laborers were used for cleaning walks on viaducts and keeping crosswalks clear of slush in the downtown sections during the day.

All the Street Cleaning Section trucks and employees were assigned to salting hills for four hours on February 4, when the snowfall began, and also eight hours on February 8, when a very icy condition developed from a slight rainfall at 6 in the morning. As soon as the hills were made safe for traffic, the street cleaning equipment was transferred to the removal of snow.

Four hundred and thirty-two loads of 4 cubic yards each were removed by 2½-ton trucks; 1,252 loads of 2 cubic yards each were removed by 1½-ton trucks owned or hired by the city. In addition to the city-owned trucks, the FERA assigned 29 trucks and 143 men to the snow-removal project. The FERA trucks worked 24 hours each and removed 1,640 loads of snow, making a total of 3,325 loads removed over a period of five days.

The cost of removing snow during the week of February 4 was as follows:

Street Cleaning Section.....	$4,007
Street Repair Section.....	2,137
Total city's expense.....	$6,144
Cost of removal to FERA....	2,633
Total cost of removal....	$8,777

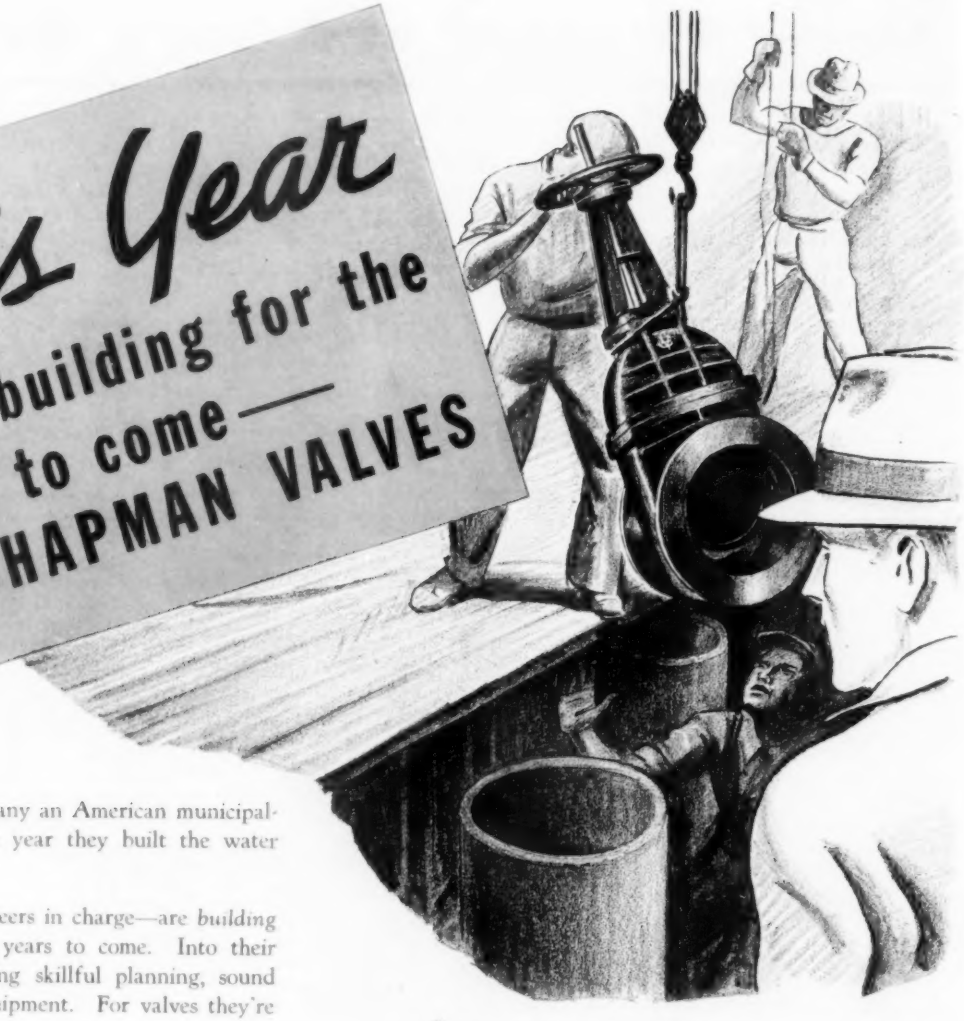
This amount, $8,777, is 12 per cent of the annual appropriation for street cleaning. With just enough to call out the salting crew almost nightly, the total bill for keeping the streets safe for travel would amount to $40,000 for one winter season, and the total appropriation for the year is $77,000.

The Street Cleaning Section of the Division of Highways began the year 1934 with a deficit of $105,000. By the application of good business methods, the deficit was reduced to $65,000 on January 1, 1935.

HENRY DREYER,
Superintendent of Street Cleaning,
Division of Highways.

This Year

they're building for the years to come— with CHAPMAN VALVES



For years to come in many an American municipality, 1935 will be "the year they built the water works."

And "they"—the engineers in charge—are *building* with an eye on those years to come. Into their projects they are putting skillful planning, sound construction, honest equipment. For valves they're choosing Chapman.

Select from the Chapman line and you make sure of long-term efficiency, rock-bottom maintenance costs. And you simplify your job of selection, for the Chapman line is complete . . . includes valves that range in size from ½-inch to 9 feet . . . gate, globe, check and cone valves . . . sluice gates . . . hydrants . . . foot, flap and mud valves . . . valve boxes . . . floorstands and all types of operating mechanisms.

Build for the future. Specify Chapman. Write for bulletins describing Chapman products and services.

Chapman Iron Body Gate Valves are providing the leading water works and sewage disposal projects with years of dependable valve performance and low maintenance.

Chapman List 61 Gate Valves have strong iron bodies . . heavy hard-bronze seat rings and disc faces that can be economically removed and renewed. They exceed A.W.W.A. specifications.

Chapman Floorstands provide a proven modern method of operating gate valves and sluice gates either electrically or manually. Motor-operated floorstands are ideally suited for control of large gates.

The CHAPMAN VALVE MANUFACTURING COMPANY

INDIAN ORCHARD, MASSACHUSETTS

Mention THE AMERICAN CITY—it helps.

Garbage Collection by Contract—Costs

Contract Collection and Incineration at Houston, Texas

THE Garbage Department of Houston, Texas, operated 24 trucks, 12 wagons, 2 ash wagons and 3 ash carts during 1934. Collection is made with contract equipment delivered to a certain point every morning at 7 o'clock where collection begins, and collection is supervised by city inspectors. During 1934, the Department collected rubbish of every description, including shrubbery and tree limbs that were placed at the street curb or alley, where trucks and wagons can collect without going on private property. The contractor is required to carry liability and personal insurance and is responsible for all damages and accidents; thereby relieving the city of any responsibility. The contractor is held responsible for damage to householders' property such as garbage cans, etc., which have to be replaced by the contractor when broken or taken away.

Inspection is made by six inspectors each having a fleet of trucks or wagons and a certain district for which he is held responsible. All garbage is picked up in each district on its collection day regardless of the hours required. The inspectors hold the equipment until the district has been collected completely. The Department is now collecting garbage on all boulevards and main thoroughfares daily. The Commission Row where vegetables are sold is broomed daily, the refuse hauled away and the area flushed twice each week.

The business district has daily collections, including Sunday, and the Garbage Department operates every day regardless of rain, extreme cold weather or holidays.

During the year, 133,820 tons of garbage and rubbish was collected at a cost of 73.1 cents per ton. The total cost of collection for the year was $97,825.70. All garbage and rubbish collected was destroyed in the six incinerators at a cost of $46,352.85, or 34.63 cents per ton.

The Department removed from the streets and destroyed by burning 13,709 dead dogs and cats and 161 dead horses and cows. All garbage and trash from hotels, restaurants and hospitals is removed by private hog raisers. This work is done at night between 6 P.M. and 8 A.M., saving the city about $25,000 per year. The Houston Paper Stock Co. collects all paper from business houses in the downtown section, saving the Department the cost of one truck and its operation, or about $3,500 per year.

In order to prevent lost motion and congestion, the trucks from the various districts are assigned to specific incinerators for the disposal of their loads. All trucks and wagons are of the dump type to speed up unloading at the plant.

W. S. WEBB.
Superintendent, Garbage and Scavenger Departments.

Garbage Collection by Contract in Kansas City, Mo.

ON July 6, 1925, the city of Kansas City, Mo., awarded a contract for the collection of garbage for a period of ten years. The Civic Research Institute of Kansas City has recently made a study of garbage collection in that city and published it in "Public Affairs," from which we quote the following material.

Prior to the present contract, garbage collection was the cause of almost continuous dissatisfaction and dispute. Collection was haphazard and unsatisfactory. Disposal was unsanitary, but the cost was low. Since the contract was put in force, there has been little complaint, and doubtless Kansas City never before had as regular, efficient and satisfactory service as the contractor has rendered. The cost, however, has been high, particularly in the past three or four years.

During the first year the contract was in force, the fiscal year 1925-26, the city paid the contractor $234,446. This was not quite a full year under the contract. The next year $284,508 was paid. Since then payments have increased as follows:

	Supervision	Contract	Total
1925-26	.....	$234,446	$234,446
1926-27	6,869	284,508	291,377
1927-28	7,505	301,737	309,242
1928-29	5,819	340,637	346,456
1929-30	6,411	325,650	332,061
1930-31	5,473	332,354	337,827
1931-32	6,505	408,827	415,332
1932-33	5,326	436,402	441,728
1933-34	4,715	425,334	430,049

The contract provides that the city shall pay the contractor $7.45 per ton collected. By dividing the payments to the contractor by $7.45, the number of tons collected each year is found. This number increased from 38,200 the first full year to 57,000 in 1933-34. The number of pounds per capita of population increased from 203 in 1926-27 to 275 in 1933-34.

	Tons	Pounds per Capita
1925-26	31,500	170
1926-27	38,200	203
1927-28	40,500	210
1928-29	45,700	233
1929-30	43,700	219
1930-31	44,600	221
1931-32	54,900	269
1932-33	58,600	284
1933-34	57,100	275

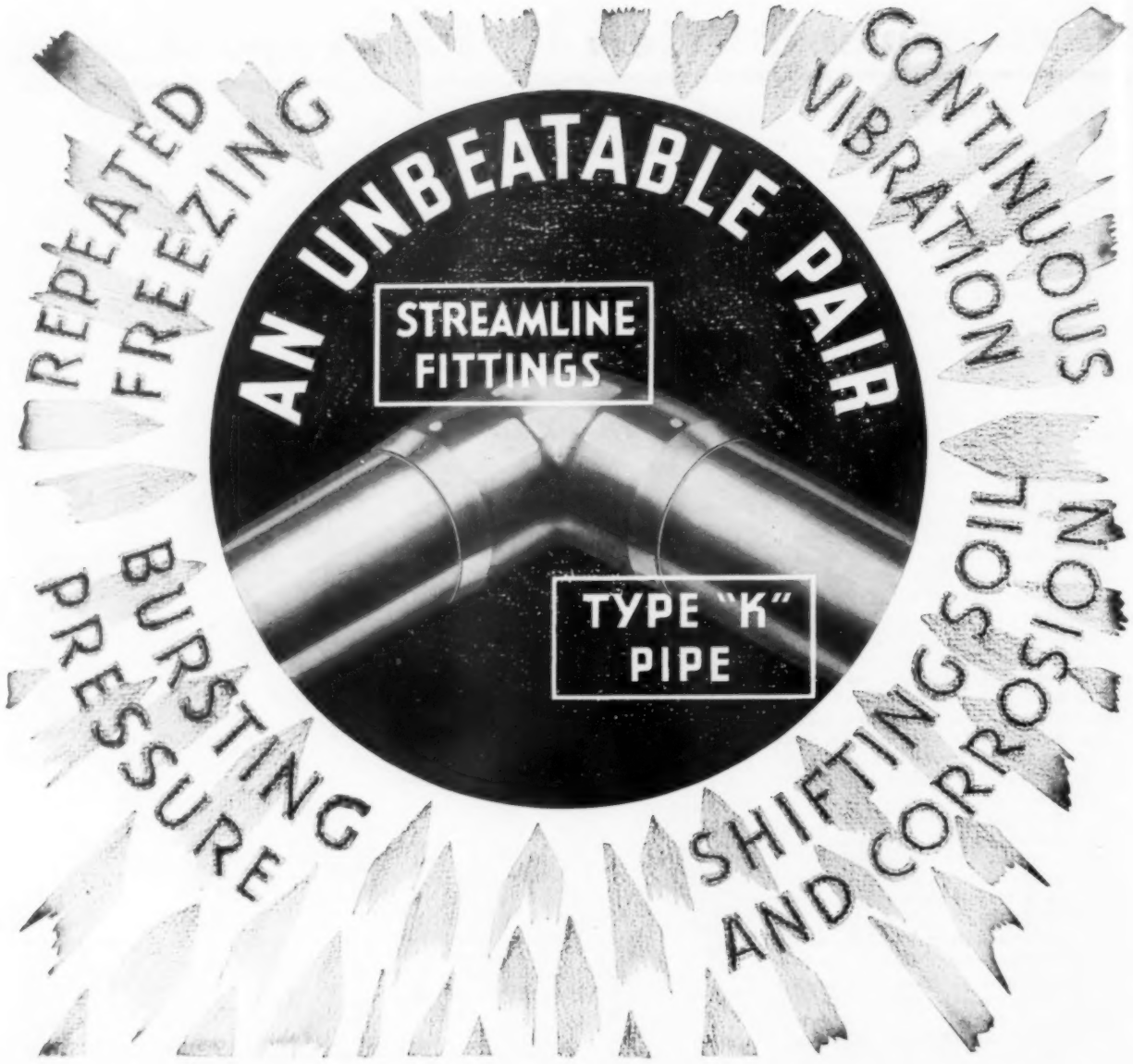
The following table shows the cost per capita of garbage collected and disposed of; the expenditures per capita of the city for all operating expenses paid from the general fund; and the percentage which garbage collection and disposal cost was of the total operating costs of the city. It will be seen that garbage costs increased from 77 cents per capita in 1926-27 to $1.06 in 1933-34, while total operating costs decreased from $17.30 in 1925-26 and $16.40 in 1926-27 to $14.30 in 1933-34. In 1926-27 only 4.7 per cent of the expenditures were for garbage collection and disposal, while in 1933-34 this had increased to 7.7 per cent.

	Per Capita Cost Garbage	All Operating	Per Cent Garbage Cost of Total Cost
1925-26	$0.63	$17.30	3.7
1926-27	.77	16.40	4.7
1927-28	.80	17.20	4.7
1928-29	.88	17.10	5.2
1929-30	.83	16.50	5.0
1930-31	.84	16.70	5.0
1931-32	1.02	16.20	6.3
1932-33	1.07	14.70	7.3
1933-34	1.06	14.30	7.7

EDITORIAL NOTE.—The city awarded a new ten-year contract starting July 15, 1935. It is very similar to the previous one, except that the price per ton has been reduced from $7.45 to $6.85. The total cost for the year 1934-35 was $373,509, a considerable reduction from the previous year.

ONE OF THREE DIESEL TRACTORS OWNED BY THE CITY OF YONKERS, N. Y., SHOWN PUSHING RUBBISH INTO THE CITY'S INCINERATOR

These diesels are "tractors-of-all-work" and are operated from 8 to 16 hours a day. Repairs have been nil thus far



THE STREAMLINE method is the most revolutionary advance in piping methods in the last hundred years. It utilizes the working of one of nature's laws — capillary attraction — to form the most permanently tight and strongest joint known.

Absence of clogging rust, ability to withstand the effect of shifting soil and freedom from the harmful effects of vibration are but a few of the many reasons why water works officials who are responsible for the return on a very heavy capital investment have in STREAMLINE Fittings and Type K Copper Pipe one of the most effective and low cost forms of insurance that they can adopt.

STREAMLINE Fittings and Type K Copper Pipe are the ideal materials for water works use; for many applications in filtration plants; in aeration lines and in heating coils using the sludge digestion system in sewage disposal plants — and for all general plumbing and heating purposes.

When your city plans call for pipe and fittings for any purpose, consider STREAMLINE materials carefully before you buy.

Send for STREAMLINE Catalog W-3

STREAMLINE PIPE AND FITTINGS

PORT HURON, CO. MICHIGAN

DIVISION OF MUELLER BRASS CO.

Sewers — Odors — Activated Sludge — New Plants

Chlorine Downs Odors at Sewage Plants

SOME complaints have been received at the Columbus, Ohio, sewage treatment plant from nearby properties that odors have originated at the plant. No steps have been taken to combat the odor nuisance. Adding a small dose of chlorine to Imhoff tank effluents materially decreases the odors from sprinkling filters. This usually requires only about 1 part per million of chlorine.

C. D. McGUIRE,
Chemist in Charge, Sewage Treatment Plant, Columbus, Ohio.

Sanitary Sewers in Lower Merion Township, Pa.

THE present system of sanitary sewers in Lower Merion Township, Pa., was started in 1902. Today about half the area and 85 per cent of the population is served by 115 miles of main sewers with 8,000 connections, and each year the system is extended to more outlying residences. There are five pumping stations in operation, but no treatment is given to the sewage, practically all of which is disposed of through the sewers of the city of Philadelphia.

The cost of installation of 8-inch mains is assessed against abutting property on the front-foot basis. The additional cost for larger mains is borne by the township as a whole. The cost of maintenance and operation of the system is covered by an annual rental charge based on the number of house fixtures. The average minimum house with one bath pays $7 to $8 per year. The total receipts are $125,000 per year.

—From a paper presented by W. E. ROSENGARTEN, Township Engineer, Lower Merion Township, Pa., before the Pennsylvania State Association of Township Commissioners.

The Use of Activated Carbon at an Activated Sludge Plant

EXPERIMENTAL work on the use of powdered activated carbon was started at the Newark, N. Y., sewage treatment plant in February, 1935, by applying Nuchar to the raw sewage. The feeding machine consists of a barrel with a $\frac{3}{4}$-inch pipe connection about 4 inches from the top of the barrel, the water being fed from the bottom by means of a hose. About 35 pounds of the activated carbon was applied daily, split into two doses.

Although the method of application is crude, the results have been very satisfactory, in that the hydrogen sulphide odor which had been present at times in the raw sewage has been reduced. The activated carbon materially reduced the scum formation in the primary settling tanks, and there has been very little grease or floating solids to remove since this treatment began.

Some of the activated carbon has been carried through the primary settling tank and is present in the aeration tanks, as shown by the darker color of the activated sludge. There has been no noted effect on the floc-forming tendencies, clarification and settling in the final tanks. There has, however, been a noticeable decrease in the quantity of grease separating out in the aeration channels.

The returned activated sludge has been darker in color since the test started, but the total solid content has remained the same. The dissolved oxygen in the aeration channels and in the final effluent have not been changed and the effluent has remained clear and free from suspended solids.

The use of activated carbon has increased the gas production in the digester. The quality of gas is improved (CO_2 from 27 per cent to 10 per cent), so that the gas engine now requires only 217 cubic feet per hour where 417 cubic feet per hour was required previously. The present calorific value of the gas is 691 Btu per cubic foot. The digested sludge with the carbon dewaters faster than any sludge ever placed on the beds at Newark, requiring only one-half the sludge bed area that ordinary digested sludge uses. The digested sludge with carbon is absolutely odorless.

PHYSICAL CHANGES

Digested Sludge Without Carbon		Digested Sludge With Carbon	
Nitrogen	3.69%	Nitrogen	4.62%
Phosphates	2.55 "	Phosphates	2.57 "

The results of the use of activated carbon in Newark show that it can be beneficially used in a sewage treatment plant.

T. J. SMITH,
Chief Operator, Sewage Treatment Plant, Newark, N. Y.

101 New Sewage Treatment Plants Needed in New York State

THE State Planning Board of New York State has stated that 80 per cent of New York State's sewage is discharged untreated into the waters of the state. The report says: "While some municipalities maintain sewage treatment plants, many do not, and there are frequent instances where the plants are inadequate and at times overloaded."

The Board states that there are 101 up-state municipalities with a population of approximately 1,800,000 where sewage treatment facilities should be created at once. The cost of providing intercepting sewers and treatment for these municipalities is estimated at $12,630,000.

SEWAGE WORKS, MALONE, NEW YORK

Office building and garage in left foreground, sewage tanks and trunk sewer in center; corner of sludge drying beds at right. Henry W. Taylor, Consulting Engineer

Reduce FALSE ALARMS with NEW GAMEWELL ARRESTOLARM

FALSE ALARMS from fire alarm boxes can be reduced most effectively by having a local warning signal sound simultaneous to the operation of the box. The loud and distinctive warning shriek of the new ARRESTOLARM accomplishes just this — it attracts the attention of police, passers-by and local residents to the box so quickly that the person operating the box cannot escape, at least not without being identified for apprehension later.

The ARRESTOLARM Signal is the most practical device now available for reducing false alarms. It is efficient, low in price, economical to install and costs nothing to maintain. Its mechanical movement requires no expensive connection to electrical power lines. Furthermore, it does not discourage the use of fire alarm boxes for legitimate alarms either by trapping the person sending in the alarm or by complicating the method of operating the box.

The ARRESTOLARM Signal is attractive—both in design and finish. Its intermittent warning signal is emitted from a well protected horn located in the back of the unit. The complete device is weather-proof, with non-corrosive parts used throughout. And, it cannot interfere with the operation of the box mechanism in any way.

Try out the ARRESTOLARM Signal on a few of your boxes which are operated most frequently for false alarms. A trial will convince you of its value. Shall we send you a copy of our descriptive bulletin A3-1?

THE GAMEWELL COMPANY

Newton, Massachusetts

Public Safety

Housing Administration Pushes Fire Prevention

BECAUSE of the direct relationship between the efforts being made by the Housing Administration to stimulate property modernization and improved construction practice and the reduction of fire hazard, the Administration has placed its full force behind National Fire Prevention Week, October 6-12.

Fire hazard reduction achieved through modernization is obvious. High standards of construction required under the Mutual Mortgage Insurance Plan (long-term repayment) automatically call for building methods and materials specifications which tend to reduce to a minimum eventual fire losses.

The Federal Housing Administration's organization, covering 48 states and the District of Columbia, is preparing to participate in the observance. In addition, the Washington office is cooperating with business, industrial and civic organizations in stimulating general attention to the dangers from fire loss and by pointing out the advantages to be derived by property owners from the provisions of the National Housing Act.

A 4-page leaflet, outlining the relation of the Federal Housing Administration's program to fire-hazard reduction has been made available to the general public. The leaflet also includes a brief explanation of the Modernization Credit Plan and the Mutual Mortgage Insurance Plan. Evidence of interest in this publication was shown by orders in excess of 1,500,000 which were received before the leaflet went to press. Numerous private organizations have already ordered this leaflet in large numbers for distribution to branches, dealers or membership of their respective groups.

Cut Out the Traffic Deaths

THE rapidly extending movement for safety on the streets and highways of the nation has enlisted the active support of the Indiana State Police, as shown by this view of the first of eight Electro-Acoustic equipped Auburns.

Not Followers But Spectators; A Correction

PAGE 15 of the July issue of this magazine said "the Memphis experiment in compulsory motor-vehicle inspection by the city has been followed by Des Moines, Evanston, Denver, Youngstown, Dayton, El Paso and Portland, Ore." This was a quotation from the June 27 News Bulletin of the Public Administration Clearing House, based on a statement by the American Municipal Association and the U. S. Conference of Mayors. The report is of course true for Des Moines and Evanston; but Sidney J. Williams, of the National Safety Council, was informed by Denver and Dayton that they do not have municipal inspection. J. E. Stowe, Traffic Chief of El Paso, writes: "I am and have been for some time trying to get the city to have compulsory motor-vehicle inspection put over, that we may cut down our death rate and accidents; but by adding some four motorcycles we have cut down both deaths and accidents in 1935. Our City Attorney has two ordinances—one from Memphis and one from the National Safety Council, and from them has written one to our liking." No word from Portland and Youngstown.

WPA Launches Federal Safety Program

ON the basis of President Roosevelt's recent declaration that "all work projects shall be conducted in accordance with safe working conditions, and every effort shall be made for the prevention of accidents," Harry L. Hopkins states that "for the first time in the history of the nation a country-wide safety program has the backing of the Federal Government." Last year the nation's accident bill from 101,000 deaths, 370,000 permanent injuries and 9,821,000 disabling injuries, totaled $3,500,000,000, or almost the cost of the entire Works program. Now each project will be scrutinized by safety experts, with frequent safety bulletins to the jobs.

Wood Shingles Menace Detroit

SPARKS on wooden shingle roofs have caused the greatest number of fires in Detroit for a long period of years. Here are the figures:

Year	No. of Fires in Buildings	Due to Sparks on Roofs	% of Total Fires
1925	7,472	1,123	15
1926	6,500	1,208	18
1927	7,399	1,352	18
1928	8,227	1,588	19
1929	9,303	1,649	18
1930	7,778	1,660	21
1931	7,435	1,905	26
1932	6,881	1,802	26
1933	6,864	2,350	34
1934	8,820	3,537	40

Detroit has not yet had a conflagration, but with the situation depicted by the above figures, the danger of one is present. Nearly all the large conflagrations, moreover, that have occurred throughout the United States in the last 25 years have been spread by wooden shingle roofs.

The hazard of the shingle roof in Detroit and the desirability of providing for its gradual elimination have been recognized by competent people in Detroit. In July, 1929, the City Council appointed a special building code committee to consider a new building code for the city. The committee devoted a great deal of time and study to the matter and under date of April 14, 1931, produced a recommended building code. This code has not yet been acted on. The committee gave very careful consideration to the points of view of all interested parties in Detroit and unanimously included a provision prohibiting wooden shingle roofs in the future in the city.

Lower Insurance Rate

The National Fire Protection Association believes that it is of greatest importance to the city of Detroit that this code, and particularly the provisions on eliminating wooden shingle roofs, be adopted without further delay. The Association says:

"The adoption of this measure would not work any financial hardship on the city or property owners. The last investigation we made as to the cost of roof coverings in Detroit indicated that proper fire-retardant roofing could be purchased and applied in Detroit fully as economically as a good grade of wooden shingle. We would further point out that a substantial reduction in the insurance premiums is provided any property owner who replaces a wooden shingle roof with a fire-retardant roof, and that this penalty on the property owner for maintaining a wooden shingle roof is exacted year after year. It should be further pointed out that the adoption of a new building code and the provision prohibiting wooden shingle roofs will provide a substantial number of points of credit in the general classification of the city for insurance purposes."

THEY'RE PARTIAL TO SHOW-DOWN ECONOMY

Nine out of _ten_ tractors at work on the biggest construction projects in the United States are "Caterpillars." Over half of these are "Caterpillar" Diesels and the figures are shifting in favor of the Diesel model every day. . . . The contractors say it's _economy_, above all else, that puts the "Caterpillar" Diesel in their equipment. And the "Caterpillar" SHOW-DOWN proves it! Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

REG. U. S. PAT. OFF.

D I E S E L

The "Caterpillar" Diesel Seventy-five Tractor and "Caterpillar" Grader—an unbeatable team for road construction at lowest possible cost. Here it is banking a grade on a highway near Joplin, Mo.

A New Deal That Stuck to The Old Deal

Note:

Water Department ordered to cut budget Suggested that economy could be effected by buying cheaper water meters

The Mayor: "In your report you recommend the continued use of Hersey Water Meters at a slightly higher initial cost than some other makes and go into a lot of details as to construction and workmanship of Hersey Meters which is more or less Greek to me I want some dollar and cents facts."

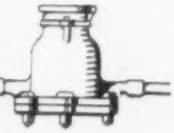
Water Commissioner: "That's easy. Several years ago we bought some cheaper water meters thinking to save money. It was a sad experience. Many of these meters have proved inaccurate, causing loss of revenue, and have been a continual expense. It costs at least $2.00 to take out and reinstall a meter not including the cost of repairs and parts. Many of our Hersey meters have been in constant operation for more than twenty years without the necessity of any repairs. My books show on averages these cheaper meters have cost us more per unit than Hersey meters."

The Mayor: "That's all I want to know. Continue to standardize on Hersey Meters. It's real economy I'm looking for."

HERSEY MANUFACTURING COMPANY

South Boston, Mass., Branch Offices: New York, 290 Broadway; Portland, Ore., 1231 N. W Hoyt St.; Philadelphia, 314 Commercial Trust Bldg.; Atlanta, 510 Haas-Howell Bldg.; Dallas, 402 Praetorian Bldg.; Chicago, 844 Rush St.; San Francisco, 553 Howard St.; Los Angeles, 450 East Third St

HERSEY
WATER METERS



STANDARDIZE ON GOOD METERS

Why not remember to mention THE AMERICAN CITY?

Reprinted from Engineering News-Record

The Unfortunate Failure to Keep Work-Relief Ideas Out of Normal Public Works Construction

By Willard Chevalier, Vice-President
McGraw-Hill Publishing Co., Inc.

OBJECT lessons of this failure are coming to hand; one of them is now found on a government reservation which for many years has needed extensive improvement and modernization.

Potentially this project is an ideal public works job such as should provide useful employment for the construction industry. It involves works and structures that are badly needed and will constitute a worth-while investment of public funds. It includes a variety of improvements which call for the services of competent contractors and skilled workmen in order to insure not only decent workmanship but also the well-being and safety of those who must live and work on the reservation. To maintain the normal conduct of reservation affairs during construction it is desirable that the various parts of the work be subject to specialized and responsible control.

Accordingly the official in charge of construction prepared plans and specifications for the several classes of work involved, estimated to cost altogether more than $700,000. They cover a number of items that call for special knowledge and skill: several miles of standard high-type pavement with accessory highway structures and granolithic sidewalks; an extensive storm-sewer system; a complete gas-supply system with installations for cooking and heating in all the buildings; further modernization of many dwellings and other buildings, including new plumbing and heating plants, plastering, painting and other finish.

SOME months ago he was ready to take competitive bids from responsible contractors, but along came pressure from above to handle the project on a direct-labor relief basis. Knowing from the nature of the work and the working conditions that such a procedure must be wasteful and destructive, he has done all that he could to resist that pressure. But at this writing he is under instructions to abandon his plans for contract work and to conform to WPA requirements.

This means that he must try to do this work on a basis of $990 per man-year including all materials, although any reasonable procedure would require 2½ to 3 times that sum. The number of men to be employed each week is prescribed and he is restricted to one skilled man to ten unskilled laborers. Thirty hours per week is the maximum per man and wages are to be 55c for unskilled labor, 85c for skilled and 94c for technical and clerical. He is allowed 2 per cent of his labor item for a supervisory force. The work is to be started next month and run through the winter and if workers report for duty but cannot perform because of the weather they must be paid nevertheless.

NEEDLESS to say, this man knows that under such working conditions he cannot produce a job that will be satisfactory either in operation or in quality. But, as in other such situations, the man who is responsible for performance and results and who knows something about the conduct of construction must give way to the influence of a relief administration that is concerned chiefly with transferring names from relief rolls to what passes for employment but what actually is a sad messing up of work that should be done by the construction men who need it so badly.

No better example of a truly worth-while public works project could be imagined and there can be no defensible reason for converting it into work-relief. Before this job and others like it finally are denied to a competent construction industry that can do justice to them and perverted into wasteful relief agencies, someone in authority should review the principles laid down by the President to govern the conduct of public works and relief activities.

No real recovery and no constructive reemployment can be fostered by so wanton a sacrifice of both private enterprise and the public interest in the name of emergency relief.

Do you mention THE AMERICAN CITY? Please do.

OCTOBER, 1935

VOL. L, No. 10

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

THE AMERICAN CITY advocates:

Streets and roads that are well built, well lighted, well maintained

An abundant supply of clear, safe, palatable water

Sanitary disposal of sewage and garbage

Fire and police departments properly trained and equipped

Traffic control for safety and facilitation; fewer grade crossings

Plenty of parks, parkways, playgrounds, and swimming pools

Banishment of slums, and building of well-planned home neighborhoods

Administrative efficiency and citizenship co-operation in bringing these things to pass

Cut Down the Traffic Deaths

THE traffic-accident problem has not only became first-page news, but has been discovered by the columnist and the general magazine as well. It would be agreeable to ascribe this sudden unison of interest to a seed dropped by THE AMERICAN CITY last December: "Putting the fear of the law into the driver is of course one very desirable method. Others are needed, such as putting common sense into him through educational publicity of a high order." It is probable, however, that the immediate impetus was furnished by the now famous J. C. Furnas article, ". . . And Sudden Death," in the August, 1935, *Reader's Digest*. Westbrook Pegler starts his September 18 column in the *World-Telegram* on this note. He holds that, strong as are these descriptions of visible bones and gore, they are soon forgotten by the bad drivers —who constitute the major proportion of the menace and are legion. But he agrees that "the experiment" in photographic portrayal of serious accidents "is worth trying," despite apparent willingness in some quarters to start another world war.

Next morning the New York *Herald-Tribune* reported the accident involving Mrs. Mabel Walker Willebrandt, and noted three fatal accidents near the city. That evening the *World-Telegram* commented editorially on the recent death list of personages, including Queen Astrid, Prince Alexis Mdivani, Lawrence of Arabia, and Mrs. Harold L. Ickes. "To end it we must learn and teach safety rules and arrest reckless drivers. But we must do something harder; we must reduce our average rate of speed."

It is not a simple problem. Traffic engineers are probably more alive to its complexity than any other class of men. In this issue of THE AMERICAN CITY ten of them, all favorably known beyond their own cities, outline what in their opinion it is practical to do to reduce the awful results. The layman, glowing with suggestions, may have a sense of futility in reading the recommendations, for they are without exception the standard remedies. Students of the problem, however, have long since realized that accidents cannot be prevented by law alone, and that there is no panacea that can be fed to drivers en masse.

In a 4 x 6-inch pamphlet recently distributed by the Port of New York Authority, Governor Harold G. Hoffman of New Jersey pictures how high speed builds up tremendous power which, when a sudden stop is required, must be dissipated by the brakes. At 60 miles an hour a car is nine times (not three times) harder to stop than at 20 miles; stopping-distance at that speed is 226 feet; an unobstructed view of 600 feet is needed, whereas at night the driver at 60 miles is heading at a blind spot only 200 feet ahead. For twelve pages Governor Hoffman gives the kind of information that it is planned to issue orally and as literature at the motor-vehicle inspection bureaus that are coming into being as the focal points for improving both the car and the driver.

Fortunately, there are certain bright spots on the traffic map. Milwaukee is one of these, and a story of commendable accomplishment is told by Paul de Kruif in the September *Ladies Home Journal*. Milwaukee has been a banner big city for three years; reasons: (1) impartial enforcement, 7,997 violations in 1934 and 7,103 convictions; (2) no police courtesy cards; (3) safety islands not only on street-car streets but at bad intersections, and curved, tapered and marked for the guidance of the driver; (4) bold pavement markers; (5) expertly timed signals; (6) school safety cadets; (7) an experienced and interested citizens advisory committee. Thoughts for the future include grade separations and high-school courses in driving taught in the streets.

The increasing number of white lights of publicity concentrated on the national problem will undoubtedly have a favorable effect. If Milwaukee can reduce its vehicle killings from 102 to 86 to 73 to 66, other cities can and will reduce theirs, and then the psychology of record-holding will reduce them further. A record is a matter of pride, made to be bettered. Milwaukee's success has made it idealistic—setting zero deaths as the bogey. The practical general objective is to get the rate going down in an ever increasing number of cities and highways.

Central Office Control and Decentralized Operating Staff, Toronto Street Cleaning

THE general activities performed by the Department of Street Cleaning of Toronto, Ontario, embrace the cleaning of public thoroughfares, the collection and disposal of ashes and household waste material, the cleaning of catch-basins, the oiling of unimproved roadways, and the removal of snow from the downtown section and main arteries.

The organization comprises a central administration office, three main geographical divisions for street cleaning and refuse collection services, each controlled by a divisional superintendent, and an Engineering Division controlling the maintenance of motor equipment and the operation of four refuse disposal plants.

Each of the three main divisions is divided into foremen's districts, which are again subdivided into three sections representing the days of collection, namely, Monday and Thursday, Tuesday and Friday, and Wednesday and Saturday.

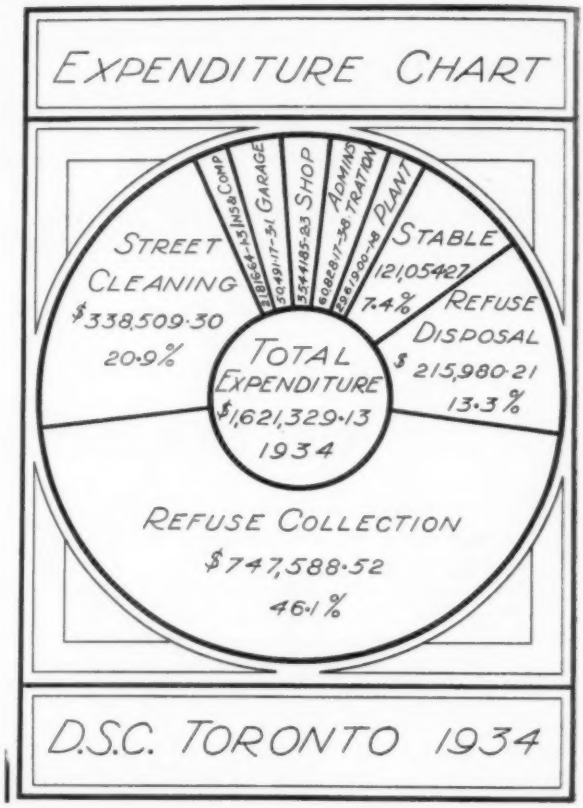
The divisional superintendents are responsible for the operation of their respective divisions, while the execution of the work is entrusted to the district foremen. Each refuse disposal plant and the garage are controlled by a foreman, who is responsible to the Superintendent of Incineration and Garage.

The four divisional superintendents' offices are located in their respective divisions, where time sheets are prepared, records maintained and reports made incidental to the operation of the division.

For refuse collection purposes the area of the city is divided into 24 foremen's districts, which are again subdivided into three sections, thus permitting a twice-weekly collection to all parts of the city. The average area of each foreman's district is 900 acres, with an average of 24 miles of streets and 6.6 miles of lanes. There are nine districts in the Eastern Division, eight in the Northern Division and seven in the Western Division.

For the performance of street cleaning work, there are four foremen's districts comprising the downtown and business sections of the city, while the remaining sections are under the jurisdiction of the refuse collection foremen, who supervise the work in conjunction with collection.

During 1934 there were, on an average, 946 men employed daily in the various services of the Department. The refuse collection service required 65 city-owned trucks, 270 city-owned wagons and 6 hired trucks during the winter season, and was reduced to 56 trucks and 212 wagons during the summer months. There were 187 patrolmen and 56 vehicles engaged in the street cleaning service, and 108 men were continuously employed on disposal.



George W. Dies, who entered the service of the city of Toronto in 1899 and was appointed Street Commissioner in 1924, was responsible for the activities of the Department of Street Cleaning until his retirement January 31, 1935. He maintained his Department at a degree of efficiency which has made it a model for many other North American cities. The present Street Commissioner is H. D. Bradley.

THE SNOW MEN WHOSE STATURE TELLS THE TALE OF SNOWFALL IN TORONTO

NORTH SIDE SEWAGE TREATMENT PLANT, OKLAHOMA CITY, OKLA.

Sewage Treatment by Chemical Precipitation

Oklahoma City Handles Difficult High-Sulphate Sewage with Ferric Sulphate, Lime and Final Chlorination

THE high sulphate content of the water of Oklahoma City makes the treatment of the sewage a difficult problem because the stale sewage liberates an unusually large amount of hydrogen sulphide. Flat grades of all sewers do not help the situation, but careful treatment in a modern plant at the North Side and improvements now under way at the South Side plant are overcoming the nuisances formerly existing.

The North Side sewage treatment plant serves a population of about 40,000 on the Deep Fork watershed and handles a flow of about 5 million gallons in dry weather and a much larger flow in wet weather due to infiltration. A 30-inch sewer delivers the slightly septic sewage to the plant, where it is immediately treated with 700 pounds of lime and 170 pounds of ferric chloride per million gallons.

Immediately after the application of the chemicals the sewage flows through a comminutor made by the Lakeside Engineering Co. which shreds all solid material so that it will settle out in the primary settling basin.

Handling the Chemicals

The ferric chloride solution for application to the sewage is made at the plant by the action of chlorine, controlled by a Wallace & Tiernan machine, on iron lathe turnings in a tower of 36-inch vitrified sewer pipe. The tower is 12 feet in height, extending through to the upper floor of the building, where the iron turnings are stored and shoveled into the top of the tower. The solution is recirculated by a 1¼-inch Olivite centrifugal acid pump giving a 4.5 per cent solution. Outside the building are a pair of open tanks for the production of ferric chloride, which give a ½ per cent solution without recirculation for standby purposes. On the upper floor there is also room for the storage of about 60 sacks of lime for feeding to the hopper of the International Filter Co. dry feed machine. The lime and iron turnings are carried to the upper floor from the driveway below by an electric elevator.

Chlorine for the production of ferric chloride and for final chlorination is purchased in one-ton containers and delivered by truck through a driveway under the building where a Yale chain falls and trolley system makes handling of the containers easy.

The Settling Tanks

As originally designed, the plant had a circular mixing tank between the flume where the chemicals are applied and the primary settling tanks. It was equipped with an 8-inch propeller which was to be used to stir the sewage as it flowed through the 40-foot diameter tank, preventing settlement and giving a thorough mixing. Inasmuch as it did not seem to increase the effectiveness of the treatment, and its 15-hp motor consumed an appreciable amount of electricity, it has been by-passed.

There are two primary settling tanks each 20 feet wide, 100 feet long and 14 feet deep, with 1¾ feet of freeboard. One tank has a Webster-Weller sludge collector, and the other a Rex collector, each operating at 1 foot per minute. A double flume running down the side of the tanks serves as an influent and effluent channel, the influent running through the top section and the effluent through the lower.

The secondary settling tanks, the same size as the primary tanks, are equipped with Rex sludge collectors.

Sludge Handling and Conditioning

The primary tank sludge is drawn daily, and the secondary tank sludge whenever sufficient has accumulated to handle satisfactorily. The sludge is pumped with a 4-inch Jennings sewage pump with a remodeled impeller. When the sludge is too old to filter satisfactorily, it is pumped by a PFT ejector to the old Imhoff tanks, which are covered and used as digestion tanks. A Sullivan air compressor is used to operate the ejector, which is used only for delivery to the Imhoff tanks.

The fresh sludge for filtering is conditioned with about 250 pounds of lime for each 500 cubic feet of wet sludge, averaging 9 per cent dry solids. The sludge production

is about 2,300 cubic feet daily on a flow of 4.5 to 5 million gallons. The conditioned sludge is filtered by an Oliver vacuum filter 5 feet 4 inches in diameter and 10 feet wide. The filter is operated from 6 to 8 hours without washing, and the cloth is changed once a week. The vacuum and filtrate pumps for the Oliver filter are located in the basement with the laboratory.

Local farmers take about one-third of the dried sludge, and the remainder is being used about the plant in the landscaping program, using FERA labor. Trees are being set out, a tulip bed added, and the grounds graded, following the completion of the secondary tank with CWA and FERA labor. Floodlights permit effective night operation.

The sludge from the Imhoff tanks is dried on a large area of beds, onto which it flows to a depth of 12 to 16 inches and dries rapidly. The lime conditioning helps to speed up the time of drying.

The final chlorination, 250 pounds per 24 hours, is applied at the effluent end of the primary tanks. One spare W & T chlorinator is installed for use either to produce the ferric chloride or for the final chlorination as needed.

The sewage treatment plants of Oklahoma City are operated by the Water Department under the direction of L. H. Scott, Filtration Engineer, and T. G. Banks, Superintendent. O. M. Mosier is City Manager.

Sir Raymond Unwin on the Congestion Problem

EVER since he wrote "Nothing Gained by Overcrowding," back in 1912, Sir Raymond Unwin has been a consistent champion of spaciousness in urban development. He has now returned to the fray in an exceedingly practical and stimulating paper* on "Urban Development: the Pattern and the Background." From this plea for common sense in land and community planning the following excerpts are taken:

Letchworth's Experience

"Fortunately, we now have one new town which has grown under conditions allowing sufficient freedom of choice to offer some reliable indication as to the amount and distribution of open land which an urban community desires. Letchworth has now reached about half the total size contemplated; it is a complete industrial town of rather more than 15,000 inhabitants. The industrial development is, in fact, considerably in advance of the population. The town finds employment for between two and three thousand workers who come in daily from the region around; while only about three hundred go out daily to work in London or elsewhere. It has a mixed population with a fair proportion of different classes, including well-to-do, but perhaps hardly the wealthy.

"This town has developed in the center of an agricultural estate owned by the promoters, which is large enough to cover any developments likely to take place within foreseeable time. The promoters, being in the position to find sites for all the building development they could contemplate, early realized that setting aside adequate ground for open spaces would cost them little beyond the agricultural value; for if one eligible building site be reserved for an open space, the required buildings will but occupy another; a simple truth regarding the relation between the pattern of building and the pattern of land values, which the multiple ownership of sites in most towns has effectively obscured.

"Yet here lies the solution of the compensation difficulty, which is one of the chief obstacles to good planning. Whenever the planner changes the pattern of building development, he changes also the pattern formed by the contours of land values. He seldom diminishes the total; if his plan is good, he will increase it; what is lost in those parts that are added to the background is equally gained in those which are added to the pattern of building development. At present, the community is paying twice over for every move in the planning game: they pay compensation on every square from which a building pawn is removed, and they pay full building value for every square to which that pawn is transferred.

Two Solutions Proposed

"To this difficulty there are two solutions: one is to create one ownership, as at Letchworth, where no compensation for building value has been called for; that is because the building value from the sites to which buildings have been transferred has amply met the loss on the sites reserved as open land. The second solution is to create a common pool by a levy on all increase of land value due to building use, sufficient to compensate those from whose land such value or marketable expectation of value is removed by allocating it to the background of open land. Public opinion is not ripe for the first remedy, and there is some doubt as to whether this would be a favorable time for the public to assume responsibility for the whole of such marketable expectations of value as exist. The second remedy would be effective for the purpose: its fairness is recognized by many owners; the ingenuity to devise a fair scheme and the courage to carry it through, should not be beyond the reach of those who govern us. The problem was solved at Letchworth by single ownership. Consequently, in addition to a liberal supply of public open spaces, sports and other clubs, schools, etc., have been able to rent or lease, on easy terms, as much land for recreation as they required. In this way, we have, perhaps for the first time, some guide to the amount of open land which an urban community desires.

Demand for Open Space

"Letchworth was one of the first places to adopt a maximum density of 12 to the acre for dwellings; and that density applies to a large number of the smaller houses. So great, however, is the desire for garden land among all who can afford more than the minimum resulting from that density, that the average over-all density of dwellings has been reduced to about 6, or half the maximum. Even this has not satisfied the need; for 44 additional acres of allotments have been taken up, representing, at a common average of size, an allotment for one in each 8 of the householders. Such universal enjoyment of individual gardens, moreover, does not seem to have diminished the desire for communal open spaces and recreational grounds; of these there are 106 acres of public, and 162 acres of rented or leased open spaces; a total provision of 16¾ acres for each thousand of the population. This figure may be compared with the total of 7 acres per thousand aimed at as a standard by the National Playing Fields Association, and 10 acres taken as the desirable provision by American town planners. In view of the fact that the larger part of this is rented and presumably would not be taken and paid for unless required, the large amount cannot be explained by extravagant provision on the part of the promoters, or the extensive forestalling of future increase in population.

"There are needs for amenity and recreation which call for larger stretches of the open land background than any which have been included so far in our calculations. Still more important, there are social, cultural, and economic considerations, which any good pattern must satisfy, and which will determine the best distribution of the local urban patterns upon the regional or national background of land."

* For the complete paper see the *Journal of the Town Planning Institute* (of England) for August, 1935, and *The Planners' Journal* (Cambridge, Mass.) for September-October, 1935.

Pre-Mixed Materials Used in Stabilizing Streets

Ames, Iowa, Offers New Factory Methods for Low-Cost Road Work

A STABILIZED mixture for use in laying three miles of city streets in Ames was produced by a concrete mixer at a central mixing plant, using pulverized clay from a near-by brick and tile factory. Calcium chloride is included in the mix, and excellent results are being obtained in a densely compacted 3-inch surface mat which is designed to serve as the base course for a thin bituminous treatment to be applied before the end of this year.

Plant Production

In arranging for plant production, the most difficult problem was to devise a method for pulverizing the clay needed for the stabilized mixture. This was solved by obtaining the clay, already pulverized, from a brick and tile plant nine miles distant. In the brick factory the clay is pulverized in a dry pan-mill, with a capacity of 32,000 pounds an hour. The mill consists of two heavy wide wheels, each weighing 4,400 pounds, revolving on a steel pan about 4 feet in diameter. The pan is slotted with ⅛-inch openings. The pan also revolves horizontally under the wheels, and two wooden blades, set at angles to the edge of the pan, throw the clay into the path of the crushing wheels. As the clay is pulverized, it passes through the slots onto a conveyor and thence to an overhead screen with slightly smaller openings, where any oversize is returned to the pan. The fine clay passes into a storage bin from which it is loaded onto the truck for delivery to the mixing plant established in an open field near the city limits. The clay is delivered at $2.70 per cubic yard and is mixed with the gravel at the rate of about 12 per cent by volume. Soils tests reveal a plasticity index of about 35, and the finished mixture shows a plasticity of 11-12.

THE MIXING PLANT WHICH PRODUCED THE MIXTURE FOR STABILIZED GRAVEL STREETS IN AMES, IOWA

Mixing

The concrete mixer handles ¾-cubic yard in one batch and is loaded by means of a skip. The gravel and clay are stockpiled near the mixer, and the proportioning of clay to gravel is accomplished by loading the skip by wheelbarrows, using relief labor. After making the soils tests and computing the volume of the wheelbarrows, the desired mix is obtained by the simple expedient of using one wheelbarrow of clay to six of gravel, and adding a measured amount of calcium chloride. The calcium chloride is used at the rate of ½-pound per square yard per inch of depth, or about one bag of calcium chloride to every nine mixer batches. A platform was built around the skip, and the gravel and clay wheeled up the platform and dumped directly into the skip. Mixing a batch required only 30 to 45 seconds, and the plant produces as high as 200 cubic yards in 10 hours.

The gravel used in the stabilized mixture was obtained from a commercial pit equipped with a portable crushing and screening plant. The specifications for the gravel call for 100 per cent passing a 1-inch sieve, 50 to 75 per cent passing a ⅜-inch sieve, and not less than 45 per cent nor more than 55 per cent passing a No. 8 sieve.

Placing the Mixture on the Street

Prior to placing the stabilized mixture on the streets, the existing street surface, in most cases, consisting of cinders, was excavated to a depth of 6 inches. As the street improvement in all cases included the installation of new curb and gutter, this provided for excavating within 2 inches of the bottom of the 8-inch gutter slab. This subbase was then carefully graded and smoothed, and a base course of ordinary gravel, having a maximum size of 1½-inch, was then applied to a depth of 3 inches. This gravel base was thoroughly rolled before the stabilized mixture was placed. The 3-inch stabilized course was then placed on top of the ordinary gravel, coming to a level with the gutter. The stabilized mixture was hauled to the road by trucks and spread and shaped with a blader. It was then thoroughly sprinkled and rolled. Sprinkling, rolling and shaping was continued for a few days until the course was thoroughly compacted.

Bituminous Coat

Believing that the stabilized mat will supply the strength to resist the weight of traffic, it is planned to cover the streets with only a very light bituminous treatment. The bituminous coat is to be applied late this fall after the

stabilized course has been thoroughly compacted by traffic. The estimated cost of the stabilized 3-inch mat is 13 cents per square yard, including the gravel, clay, calcium chloride, and mixing and placing operations, but indications are that the actual cost will be considerably less.

Property owners along the streets being improved are paying for the curb and gutter installations, while the city bears the expense of the roadway improvement. Residents have been so satisfied with the results already obtained on the first streets completed that petitions for the improvement of two additional miles have been received.

Repaving an Abandoned Street-Car Area

HOW to get rid of the street-car tracks that have been abandoned by the local traction companies in hundreds of American cities has been a problem that has worried many a wise head. Some cities have left the tracks in place and tried to fill the space with bituminous materials, resulting in an unsatisfactory job which only makes the old track area more obvious. Wichita has taken advantage of relief labor to remove the rails, which were deeded to the city when street-car traffic was given up for busses on many of the city streets.

The original franchise granted for the operation of street cars in Wichita required that the street-car company restore the pavement whenever any track was abandoned. Under existing conditions of possible revenue, any attempt to enforce this franchise provision would have resulted in receivership for the company and no restoration of pavement. A new franchise was granted which provides for the transfer of ownership of the track to the city, and a payment of $75,000 at the rate of $2,000 a month, in lieu of the work being done by the company.

STRIP OF STREET RAILWAY TRACK REMOVED PREPARATORY TO REPAVING, WICHITA, KANSAS

With relief labor the city has done a job to its own satisfaction and has restored the pavement for the full width of the street track area with the same type of pavement as the remainder of the street. In some sections where short lengths of track had been left from earlier abandoned lines when the streets had been paved with concrete, there were brick around the track. Inasmuch as the brick are more valuable than concrete at present prices, the city has repaved these short sections with quick-setting cement concrete and salvaged the brick and the track, which is being held in the city yard awaiting a time of more favorable scrap prices.

On this work, and throughout all paving in the city for many years, 2-inch creosoted plank with 8-pound treatment, cut up into blocks, has been used for expansion joint. P. L. Brockway, City Engineer, reports that this was an idea picked up many years ago from a discussion at a meeting of the American Society for Municipal Improvements, now the American Society of Municipal Engineers.

For repaving asphalt streets, and for the surfacing of the new boulevard along the river, the city has made all its own aggregate as the result of forethought. A second-hand Austin No. 2 gyratory crusher was purchased some time ago and installed in the city yard. All culls and bats from brick pavements that have been torn up or relaid have been hauled to the yard and stored with pieces of old concrete and such other stone as has been the product of work in the city.

The crusher reduces this material to 1¼-inch crusher-run aggregate, which is mixed with bank-run sand taken from the river at the time of the channel and bank improvement activities of the last few years for the making of concrete either portland cement or bituminous.

A Rex 10S mixer which is used for mixing concrete is also used for the making of the hot-mix for bituminous surfacing. Whenever necessary, aggregate is preheated in a Koehring hot mixer. In cold weather much work has been done with cut-back asphalt in the mixer with the sand heated. It was realized that this was not the ideal time for this type of work, but only coarse-aggregate surface was laid and left for an unusual length of time for curing before sealing. A small amount of dust in the coarse aggregate mix has given very good results.

This material has been used both in track paving and as a black base for other work. About 40 men have been given almost continous employment in this work, both paving and track removal.

Progressive Watershed Control Through Planning and Zoning

By M. WARREN COWLES
Health Officer, Hackensack Water Company

THE basic elements of watershed sanitation have have changed greatly in the past twenty years, owing to a variety of factors. Inaccessibility, as a protection to impounding reservoirs, has largely disappeared, and the present means of quick transportation over long distances has tended to increase accidental or promiscuous pollution of small tributary streams, and even of the impounding reservoir itself. Increased leisure time has become an important factor.

While large-scale property ownership in itself may not prevent trespass and accidental contamination, it does constitute an important protective control, when accompanied by proper sanitary patrol. Marginal property ownership along impounding reservoirs, including minor tributary streams, and along main tributary streams a short distance from the reservoir, has become necessary to prevent improper uses of this adjacent land, but the ownership of the greater portion of a watershed does not at present appear to be a sound economic principle. Marginal ownership, the extent to be determined by local conditions, should be supplemented by filtration as an absolute protection. Watershed protection is a broad public problem, and all should cooperate with the water purveyor.

Nearly all the larger watersheds in this country from which a potable water supply is drawn have built-up communities upon them of varying size, some of which are rural villages developing very slowly, and others thriving, growing towns. For the latter type, where there is the most danger of contamination of watercourses through uncontrolled growth, the creation of planning boards and the adoption of zoning ordinances can be fairly readily accomplished. In the rural areas it is much more difficult to enlist interest in these matters, but here some simplified or skeleton control with simple administration can doubtless be worked out either locally or without outside assistance.

Water Purveyor Should Not Bear Full Burden

The burden of the protection and prevention of objectionable conditions is directly a public health problem and should not fall entirely on the water purveyor. It is a matter of coordinated and cooperative action in the public interest. Where the public health phase is adequately handled and controlled, the problem of watershed control is greatly simplified. The inherent strength of the suggestions made would at first thought indicate that the necessary controls over development would be established.

The writer has done considerable research on this problem of control, and certain interesting developments have come to light which can be merely referred to at this time. The growth of a community regardless of its location occurs rather obviously, house by house, or building by building. What other official agencies of the municipality are concerned and what part, if any, can they play in the control program? The local building inspector must issue a permit for the building, providing it is in accord with the building code, which relates primarily to safety, and also in accord with zoning and other ordinances, but with little or no emphasis on the al-important item of sanitation as it may affect those persons residing in the building and on adjoining property and the community in general. Permits for the plumbing system within the building are issued by an official of the local board of health or by a representative of the building department, in accordance with an adopted plumbing code.

Plumbing and Sanitary Codes

Plumbing codes can be roughly divided into two general classes: (1) a state plumbing code of minimum requirements supplemented and amplified by locally adopted codes not inconsistent therewith and, therefore, more or less of the same pattern; and (2) local codes enacted without state supervision and guidance. The second group shows a wide range of subjects covered and an even wider range of requirements on a particular subject. Sanitary codes may be classified in a somewhat similar manner, and only too frequently they relate largely, at least as far as disposal of human waste is concerned, to matters of nuisance of one kind or another, many of which are relatively unimportant to the public health in the broadest sense. Under this type of code, however, most of the disease prevention work is accomplished by local health authorities. The researches of the writer thus far made

Background

The author has been Secretary of an unofficial County Planning Association, and member of two official zoning commissions and is now Vice-Chairman of the official Planning Board of the village of Ridgewood, N. J. Since 1926 he has been in charge of watershed sanitation for the Hackensack Water Company, of which Nicholas S. Hill, Jr., is President. This broad experience has given definite assurances that these several phases of watershed control have very interesting future possibilities of great importance in the problem of conservation of our water resources as well as in the growth and development of our communities. If the principles of public health are carried out in an efficient and continuing manner, watershed control would be much simplified.

indicate that a scheme can be devised which will carry into effect the principle of "prevention" in a simple and direct manner through a properly drawn series of codes containing provisions relating to the construction of private sewage treatment devices. Such a scheme could perhaps be made to legally and effectively control the erection of new buildings and prevent their erection where the owner is unwilling or unable to provide adequate sanitary facilities.

Summer Resorts and "Developments"

There is real necessity for control of development at summer resorts along our lakes and streams. The state codes of Wisconsin, adopted in 1926, contain provisions for proper sewage disposal in all locations and also provide for a rigid control over new subdivisions along its lakes and streams. The results have apparently been exceedingly successful, but the expense of supervision may be somewhat heavy. The reports of the New York State Planning Board have emphasized very strongly the necessity for conserving and protecting such areas, but thus far have not made any specific suggestions.

In 1933, a law was passed in New York State requiring submission of plans to the State Health Department where developments with more than ten houses were proposed, the plans to include a topographical survey, and detailed information regarding the size of lots and proposed water supply and sewerage facilities. In the opinion of the writer, this law represents a step in the right direction, but it is not broad enough to effect adequate control of the development along the lakes and streams of that state. It is evident that the state has a distinct responsibility in connection with such developments and should take steps to properly control them. Having in mind the relation of the state to its communities, it would seem readily possible to provide a fairly ideal set-up of control, represented by state laws or codes of minimum basic requirements enforced by the local governing bodies with the assistance and support of the state wherever necessary. Planning and zoning on a simplified or skeleton basis can be developed as an essential part of any such comprehensive plan.

Conclusions

Coordinated planning activity in which state, county and local municipality share together in zoning on a somewhat similar basis can be expected to accomplish much in the way of watershed control over a long period of years through prevention, thereby resulting in conservation of our water resources. Community sanitation should be given a most important place in all planning studies.

Planning and zoning, even more broadly interpreted than it has been in the past, will provide a framework into which from time to time, the desirable details can be fitted so as to provide a complete and workable pattern of the greatest possible value to our citizens.

ACKNOWLEDGMENT.—Abstract of a paper presented before the New York Section of the American Water Works Association.

Passamaquoddy Dam and Eastport

By MARY KINGSBURY SIMKHOVITCH

PERHAPS you may read in the weather news that Eastport is generally 58° when other cities are in the 80's. Or you may remember from your schooldays that Eastport is the most easterly of all the cities in the United States. Latterly you may have known some one who is enjoying the summer Art School headed by George Ennis. But suddenly the Federal Quoddy dam project of harnessing the tides to produce cheap power has brought Eastport to the attention of the whole country.

Especially to the residents of the Passamaquoddy end of Maine is the new project very exciting. Exaggerated ideas, it is true, are afloat about the vast population that is going to come to Eastport, the new industries that will spring up and the real estate boom that will take place. Others, on the other hand, deride the project, believing that when once the engineering features are finished the plan will collapse for lack of use of the power made available. But the dispassionate observer will recognize first that the project will give work to a great number, not now accurately estimated, and that it will stimulate business in the region. Also, the fact that no one can foretell exactly how the plan will turn out is no more true of this project than of anything else in these uncertain days when imagination and a certain amount of daring are a necessity.

The immediate effect of this great undertaking is to reestablish hope and confidence in this vicinity. The first evidence of this is the increased tidiness of Eastport. People, hitherto unwilling to use up last reserves or to borrow, are now painting their houses and in general spending a bit more freely. But the most important step taken by Eastport is the creation of a local Planning and Zoning Commission charged with directing the future growth of the city. A statute of the state of Maine legalizes zoning restrictions made by cities and submitted to the voters after being passed on by a Supreme Court Justice. This Commission, just appointed by the Mayor of Eastport, Roscoe Emery, who is Chairman, includes as Vice-Chairman Dexter Cooper, who originated the tidal project and who is now consultant to Major Fleming and his engineers of the War Department, under whose auspices the project is being developed.

The initial meeting was held in the Art School's studio on July 29, when the election of officers took place and general policies were laid down on the basis of which a report will be rendered. It is hoped that with the assistance of the State of Maine Works Project Administrator a technical staff can be provided which will prepare for consideration by the Commission a preliminary report covering development and protection of the waterfront, new roads, including a scenic highway, recreational features and additional transportation facilities by sea and air for the Greater Eastport. The City Council has already passed an ordinance providing that no filling stations or hot-dog stands may be installed in the neighborhood of the project developments without a permit from the city. Captain Sturges, assistant to Major Fleming for the housing for workers and the supplementary construction features of the project, is a member of the new Commission. It is expected that the War Department's plans and the Eastport development will be coordinated with a view to benefiting the entire community after the Quoddy dam has been built.

The foresight of Eastport in making a plan at the beginning of this construction is heartening not only for this region but as a sign of the awakening of cities to their new opportunities opening up through Federal aid.

The Design of Municipal Incinerators

With a Description of the New 150-Ton Plant at Shreveport, Louisiana

By C. E. OLSCHNER
Jones, Roessle, Olschner & Wiener, Shreveport

A HILLSIDE site is a valuable asset for a small incinerator, but it has no particular value for the modern crane-operated plant which has refuse-receiving bins at the ground-floor level. The ideal arrangement of any large incinerator building, from an operating standpoint, will largely depend upon the capacity of the plant. The method of handling the refuse at the plant also depends on the size or capacity of the plant. By "plant" is meant the entire "layout" or driveways, building, garbage-receiving bins and furnaces, together with the crane-and-bucket, the traveling crane always being used in plants of sizes sufficient to warrant it.

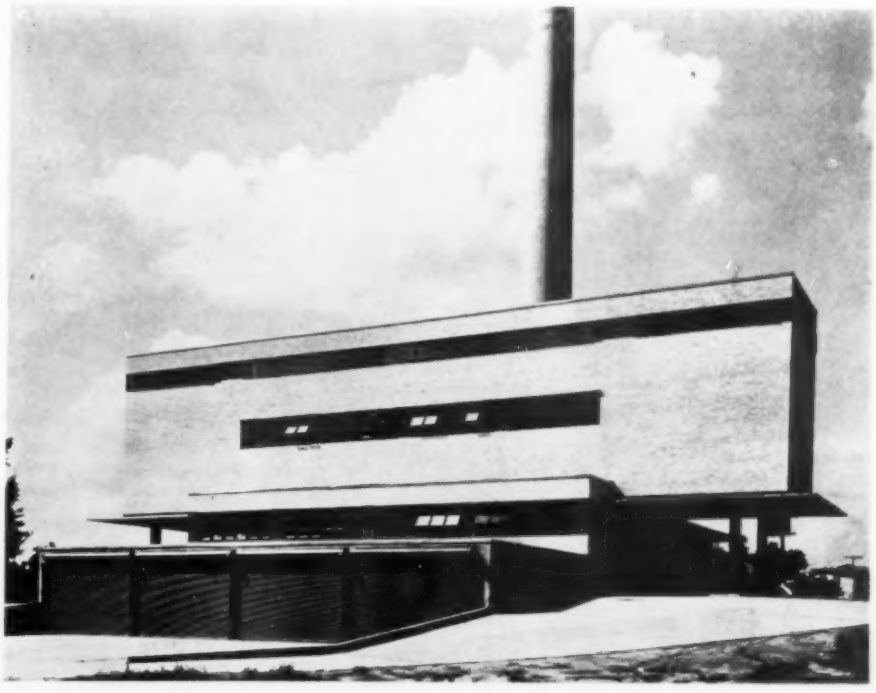
Small and Large Plants Compared

The ideal arrangement for a small incinerator, of 50 tons capacity in 24 hours, is where the building is built into the side of a hill or with a high ramp so that trucks may deposit the refuse directly on the charging (third) floor, above the furnaces. This incinerator building is called the "direct feed" type. In the "gravity feed" type the refuse is dumped into storage bins above the furnaces, where it then falls by gravity into the hoppers above the furnace gates of the charging apparatus. Another type of "conveyor feed" is one wherein the refuse is dumped on the conveyor, which carries it up and dumps it into the charging hoppers above the furnaces.

In the larger plant, of 150 tons or more capacity in 24 hours, we believe the ideal building arrangement includes large concrete refuse storage-bins at the ash removal (ground floor) level, into which the crane grab-bucket is lowered. The bucket of refuse is then lifted and moved horizontally by the traveling crane and is dropped into the hoppers on the charging floor. The charging floor provides space principally for the hoppers above the furnaces. Locker and toilet rooms may be provided on this floor or the lower floors.

The stoking floor should be planned for the most workable arrangement of furnace units, preheaters, fans, ducts, etc. The economy of building area will depend on the ingenuity of the architect in providing convenient areas and sufficient spaciousness surrounding the furnaces. Certain minimum distances are mandatory, but more than minimum is preferable in order to increase the degree of convenience and give more desirable working conditions adjacent to the furnace unit.

Furnaces of the type used in most of the larger incinerators consist of three or four burning-cells arranged in series with a combustion chamber at one end or at the rear. Two ducts lead from this chamber, the larg-



FRONT OF THE NEW MUNICIPAL INCINERATOR AT SHREVEPORT, LA.

et one being the flue leading to the expansion chamber and thence to the chimney. The smaller duct is a by-pass allowing the hot gases to pass through the preheater before reaching the expansion chamber. The expansion chamber acts as a dust-trap, and is an enlarged section of the flue located near the chimney, its purpose being to trap dust from the vortex of burning gases passing into the chimney. Vertical grilles of firebrick in the ducts and flues further retard the passage of dust. Periodically, about weekly, the dust, or fly-ash, is shoveled out through the clean-out doors, which are conveniently located for that purpose.

Each cell in the unit should be designed with a drying hearth floor directly below the charging hoppers, and a cast iron burning grate. At the end of the burning-grate is a large guillotine-type clinker door having a small stoking door in the center. Through the stoking door the refuse is raked over the fires as needed, and through the clinker doors clinkers are removed that may be too large to pass through the dumping grates to the ash hopper below. Under the drying hearth is a hot air register allowing preheated air to circulate through the wet garbage to facilitate rapid dehydration. The blower system, or forced draft, comprises the ducts connected to the preheater and a motor-driven fan. The intake duct openings above the furnaces remove the heated air and assist in ventilating the furnace room.

Features of the Shreveport Incinerator

The designers of the Shreveport incinerator believe that they have developed a type of plan that incorporates some important features not previously found in a single building. In addition to the desirable features found in the better incinerators, the necessity of including the following as prerequisites of the plant was recognized:

1. *The use of two receiving bins* instead of one. This offers the opportunity of cleaning one bin while the other is in use. It also makes possible the separating and selecting of wet and dry refuse.
2. *Direct gravity passage* of the ashes from the furnace, through the ash hopper to ash-disposal motor-trucks. This greatly reduces the original cost and the operating cost, and simplifies the handling of ashes.
3. *Narrow crane bridge.*—This reduces original cost and load to be moved and simplifies charging.
4. *Direct ventilation* by windows for the stoking room. This is a necessity usually overlooked.
5. *Ash-handling floor to serve as motor-truck storage garage* for trucks serving the incinerator. For very little additional cost this feature adds to the convenience of operation.
6. *Low cost of construction.*—A reinforced concrete frame was used instead of structural steel. The building was designed to fit the necessities, and is purely functional.

Furnace Construction

In the Shreveport incinerator the furnace walls are constructed of insulating brick, 13½-inch walls of 3200-degree F. fire brick and 4½ inches of insulating brick set in a framework of structural steel of columns, stays, and plates. The floors are of insulating brick, firebrick, ashes and reinforced concrete. Ceilings are of suspended fireclay flat-arch brick, 12 inches thick with 3 inches of insulation on top. The lower part of the furnace below each cell is designed as a hopper for the storage and quenching of ashes, which are allowed to drop into ash-removal motor-trucks on the ground floor level. The ash hopper gates are operated by compressed air. The simplicity of this system of ash removal is most apparent when compared to the system of dumping ashes into steel carts which are pushed into an elevator, then lifted about 40 feet, dumped into a hopper, and finally into a motor-truck.

The preheater is constructed with walls and ceiling similar to the furnaces, but having removable tubes of cast iron or nickel-chrome steel. The gases pass through the tubes heating the circulating air that is used for drying the refuse in the cell in order to facilitate its more rapid burning. Many preheaters in use are constructed of insulated steel walls, and the comparative merits, initial cost, and performance are the subjects of considerable discussion. Wet garbage requires the use of preheated air, since the temperature in the furnaces must be kept above 1450 degrees F. for proper combustion. Dry rubbish or refuse does not requires the use of the forced draft system.

Auxiliary Equipment

Instruments of various kinds are essential to the proper operation of the furnaces. Recording electric pyrometers are installed in the superintendent's office, indicating the temperatures of the furnaces and preheaters. In front of the furnaces a direct reading pyrometer informs the stoker of the furnace temperatures. An electric light signal system makes it possible for the stoker to inform the crane operator what type of garbage is needed in a particular furnace. The temperatures are kept above the minimum required for perfect combustion, since smoke and odors develop when the furnace temperatures are below 1200 degrees.

Air compressors and a storage tank provide the compressed air for the charging gates on the refuse hoppers above the furnaces, and ash hopper gates on the ceiling of the ground floor.

A radial brick chimney 150 feet in height was built at the Shreveport plant. The exterior radial brick wall at the base is 17 inches thick and 7½ inches at the top. The chimney has an exterior diameter of 14 feet 5 inches at the base and 9 feet at the top. The chimney is lined with first-quality firebrick, 6 feet 6 inches inside diameter throughout, the walls being 13½ inches thick at bottom and 4½ inches at the top. Around the exterior of the firebrick lining is installed a corset of vertical and horizontal bands of steel to hold the shape of the firebrick chimney lining when expanded by heat.

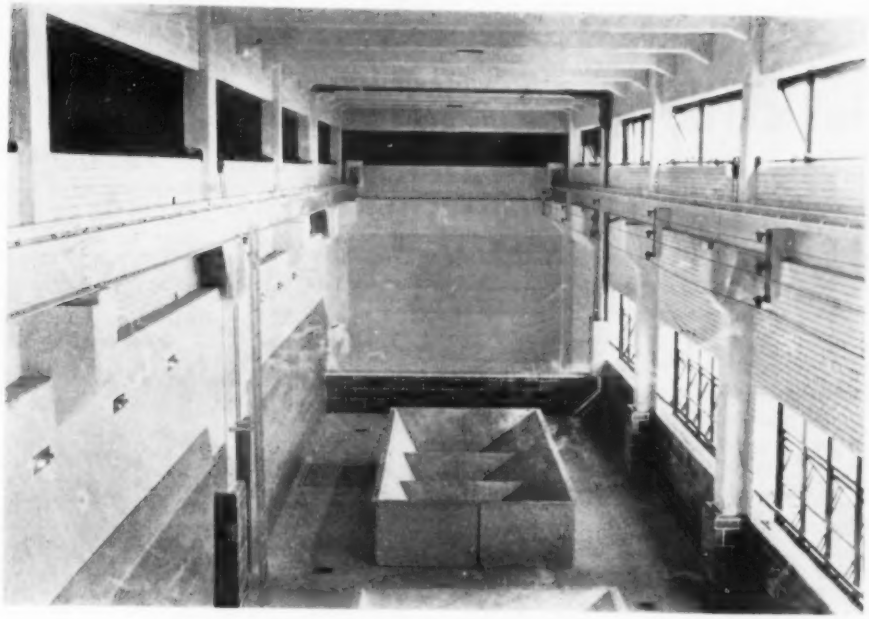
Salt-glazed brick wainscots are used in all offices, locker rooms, toilet rooms, and work spaces; and quarry tile floors are used in the smaller rooms. All floors, walls, and bins are scrubbed and sterilized daily after the day's incinerating is completed.

Complete plans and specifications for the building and all equipment were made by the engineers. The designs of all the leading incinerator companies were studied, and the plans and specifications were drawn so that the companies competed on an equal basis. In addition to the description of equipment and materials, the following guarantees and "Maximums and Minimums" were included as an important part of the contract:

Guarantees

The bidder guarantees that the plant built by him when operating under the required test will operate as follows:

1. At no time during the operation of any furnace shall the temperature in the combustion chamber thereof, as ascertained by continuous record, during the time of the tests, fall below 1250 degrees F., and an average temperature of at least 1450 degrees must be maintained in each of the combustion chambers for the duration of the test.
2. At no time during the operation of any furnace shall the temperature of the preheated air, as ascertained by continuous record during the time of the tests, fall below 400 degrees.
3. No smoke shall be emitted from the chimney of a darkness or density greater than the standard of chart No. 1 Ringlemann's smoke scale as supplied by the U. S. Geological Survey, during the test.
4. No dust whatsoever shall be emitted from the top of the chimney during the tests.
5. No odor whatsoever shall be emitted from the operation of the furnaces and appurtenances during the tests.
6. The residue from each furnace must be thoroughly burned to a clean, dry ash free from combustible organic matter.
7. The plant shall burn at not less than the rates specified in bid without the use of auxiliary fuel during the test.
8. The velocity of the gases in each combustion chamber taken through a section parallel either to the front or side walls of the combustion chamber and perpendicular to the floor or side walls of the chamber, shall not exceed a maximum of 15 feet per second at any time during the tests.
9. All materials and workmanship are to be guaranteed for a period of one year after completion of contract.



CHARGING FLOOR OF THE SHREVEPORT INCINERATOR, SHOWING THE HOPPERS AND CRANE RAILS

10. The chimney builder will furnish a surety bond guaranteeing all materials, workmanship, and design of chimney for a period of one year from date of completion, against defects or any damage caused by heat of gases, wind, or weather.

MAXIMUMS AND MINIMUMS

1. The number of cubic feet of combustion chamber space, per ton of refuse to be consumed per 24 hours at normal rated capacity, shall be not less than 15.

2. The number of cubic feet of furnace space, per ton of refuse consumed per 24 hours at normal rated capacity, shall be not less than 11. The furnace depth shall not be less than 8 feet 9 inches, and the width of cell not less than 5 feet 9 inches (inside measurement).

3. The number of pounds of air, per pound of refuse consumed, at normal rated capacity, shall be not less than 5.

4. The number of square feet of preheater surface, per ton of refuse consumed per 24 hours at normal rated capacity, shall be not less than 7.5.

5. Each ash hopper shall have a capacity of not less than 72 cubic feet below the stoking floor level.

6. The effective grate area on which final combustion takes place shall be designed to incinerate garbage and rubbish at a rate of not less than 50 pounds per hour per square foot, exclusive of drying hearth or dead plate area.

7. The drying hearth shall be not less than 24 inches wide.

8. There shall be a space of not less than 4 feet between the flue wall and any outside building wall.

9. There shall be a space of at least 6 feet between groups of two furnaces, and 5 feet at end of furnaces near building walls.

10. The stoking space in front of each furnace shall be at least 14 feet between the front of the furnace and the nearest wall or obstruction.

11. The dumping section of grate shall be not less than 18 inches wide by 36 inches long, or equivalent area, mechanically operated.

12. The receiving bin shall have a capacity of not less than 400 cubic yards water measure.

13. Dust pockets shall be provided in all chambers for depositing or trapping fly-ash or dust and ash carried over from furnace.

14. Crane, ash basement, and similar equipment clearances shall be maintained as shown on the engineer's plans.

15. The total net cross-sectional area of each main flue or group of main flues leading out of each combustion chamber shall be not less than 27 square feet.

16. The net total cross-sectional area of each flue or group of flues passing flue gas into each preheater shall be not less than 12 square feet.

17. The cross-sectional area of any main flue passing combined flue gases from both furnaces shall be not less than 50 square feet.

18. The total net cross-sectional area of each flue or group of flues passing flue gas out of each preheater shall be not less than 12 square feet.

The Shreveport plant was built by A. J. Rife and H. E. Burns of Dallas, Texas. The furnaces were designed by H. E. Burns and met the qualifications of the engineer's specifications as to design, capacity and incineration. Jones, Roessle, Olschner & Wiener were designing engineers for the building and equipment.

The total cost of the plant, including paving, garage, and engineer's fee, was $130,000. This was a PWA project.

Local Labor and Materials for Lafayette's Storm Sewers

DURING 1934 the city of Lafayette built three storm sewers, one of 1¾ miles and one of 1 mile in the southeast section of the city, and one ¾-mile in length in the north central section. The sewers varied from 18 to 36 inches in diameter and were built as a result of the availability of CWA and FERA funds. The city had planned the construction of these sewers as long ago as 1929, because, particularly in the southeast section, something should have been done years before to take care of the inadequate provisions for storm-water drainage.

All materials were furnished by the city at a cost of $15,548.70 for the two southeast sewers and $7,296.52 for the north central sewer. The pipe was concrete, made locally, thus giving additional employment within the city. All excavation was by hand labor, the trenches varying in depth from 7 to 16 feet. The sewers were laid in the park strip between the sidewalks and the curb, requiring narrow trenches and heavy sheeting, which was driven successfully by hand. The soil varies from clay in the southeast and gravel in the north central section of the city.

The labor employed over a period of eight months averaged 100 men for the larger project and 40 for the smaller. The contribution of the Federal Government toward this much-needed work was $25,130.33 and $8,605.15 respectively.

The work was done under the direction of the City Engineering Department, with Claude M. Draper, former City Engineer, in charge.

Street Openings: Permits, Excavation, Backfill, and Resurfacing

By DUDLEY C. MEYERS
Commissioner of Public Works, Oak Park, Ill.

APPLICATIONS for openings in paved streets in Oak Park, Ill., are always investigated first, and no application is approved unless the opening is absolutely necessary. Most of the openings by the Public Service Co. in 1934 were to repair leaks in mains, to install larger mains, or to install services where property had been divided into smaller lots than originally platted. There were several applications for street openings in connection with the installation of larger water service pipes for lawn-sprinkling systems.

The Water Department openings were for the installation, in most cases, of new fire hydrants or valves, preceding new street improvements. The following statement shows the financial status of the fees paid for street-opening permits:

Amount received for street-opening permits	$392.82
Bills outstanding for street-opening permits	31.68
Amount received for repairing street openings	396.55
Bills outstanding for repairing street openings	333.35

The Street Department has required that all material excavated at street openings must be removed by the party making the opening. The work of backfilling and repairing the street opening is done by the Street Department. All backfilling is done with sand and a concrete base of 8 inches placed under the wearing surface of the permanent pavement on the street. The cost of this work is charged to the party making the street opening.

During 1934, street-opening applications were approved and issued as follows: :

Public Service Co.	213
Water Department	33
Illinois Bell Telephone Co.	16
Miscellaneous	75
	337

These openings were made in the following types of pavements and roadways:

Asphalt pavement	40
Brick pavement	7
Macadam pavement	11
Paved alleys	33
Sidewalk	1
Unpaved alleys	2
Parkways	243

The Public Service Co. and the Illinois Bell Telephone Co. have continued their program of placing all wires underground and removing poles and overhead wires from the streets. This has necessitated a considerable number of permits to the Public Service Co., as follows:

Straightening	1 pole
Setting	2 poles
Moving	2 poles
Replacing	5 poles
Replacing	2 anchors
Removing	1 anchor
Repairing gas leaks	24
Cutting off gas services	21
Repairing leaks in heating services	15
Cutting off heating services	5
Replacing broken shut-off on heating services	2
Repairing drip standpipes	6
Reconnecting heating services	4

Permits for gas-main extensions and improvements in 1934 were issued as follows:

654 feet—4-inch heating service renewed
40 feet—6-inch heating service renewed

There were also twelve permits issued for new gas services, 73 permits to enlarge gas service, and 29 permits to renew gas services.

Permits were issued to the Illinois Bell Telephone Co. for the following work:

Straightening	1 pole
Replacing	28 poles
Removing	1 pole
Installing	5 anchors
Replacing	3 anchors

Street Obstruction

Whenever it is necessary to make an opening in a street or alley pavement, or to use a street for storage of material, a deposit is required from those making the opening or using the street. In the case of a street opening, the cost of replacing the backfilling and the pavement is charged to the party making the opening. When materials are placed on the street, a monthly rental charge is made, and if the Street Department is put to any expense to clean up materials left on the street after the work is done, this expense is charged to the contractor.

Applications and Deposits

When an application is made for a street opening permit, where it is necessary to open the pavement, we estimate the cost of the backfilling and the replacing of the pavement. The cost, of course, varies depending upon the size of the opening. The backfilling is done with sand and the base on all pavement is concrete. This work is done by the Street Department on sheet asphalt pavement. The final surface repair is made when a contract is let for general asphalt pavement repairs.

We figure the cost of the sand for backfilling, and the materials and labor for the base and top, and usually require a deposit of about twice the amount of the estimated cost of the work.

Consulting Engineer for Power Division, PWA

C. W. KOINER, City Manager of Pasadena, Calif., has been appointed consulting engineer for the Power Division of PWA. Mr. Koiner built the light and power utility forPasadena in 1908 and served that community as Electrical Engineer and General Manager of the lighting plant until 1921, when he was appointed first City Manager. He served until 1925 and then retired to private practice as a consulting engineer, but in 1933 was recalled to the post of City Manager, which he now holds. An expert on electric rates and valuations, Mr. Koiner has been consulted by numerous municipalities in the development of their utilities.

The Teletype in the Police Field

Now Operative in Nine States, With 700 Police Stations Connected: Results and Police Views

EFFICIENT police operation requires the use of a widespread, rapid, and accurate communication system, and the increasing adoption of teletypewriter service by the various police organizations throughout the country is good testimony to the value of this wire service as one of the avenues of communication in police work.

During the ten years that the teletypewriter has been used by the police the system in the East has expanded, until there now are eight states, all interconnected, with more than 700 police stations. These states are Connecticut, Delaware, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, and Rhode Island. In addition to this eastern network, there is a state-wide system in California.

In most cases these state teletype systems are composed of a basic system operated by the state police, to which various county and municipal systems are in turn connected. The further development of the nation-wide system is therefore dependent on prompt and favorable action by the various state legislatures and other governing bodies within the states of the nation.

Even within this large area already covered by teletype networks, many cities are taking advantage of the system though they are not connected to it. The crimes committed in these cities are telephoned to an adjacent municipality having a teletypewriter or to the nearest state police station. Generally no reciprocal service is given by them to the cities connected to the network.

Whether a city should install one or more teletypewriters is comparatively easy to determine. It should be so equipped if its police headquarters is open 24 hours a day and the information received on the machine will thus be acted on promptly. It should be so equipped if it is strategically located; that is, on a main highway, at a bridge, or at any outlet from the state.

Cities having several police precincts are often equipped with their own separate teletype system, which, of course, is connected to the state-wide system. Sending-equipment at headquarters and receiving-equipment at the precinct stations permits both routine intra-departmental business and the broadcasting of urgent alarms to the precinct stations for record purposes. Such a system may be seen in the city of Newark, N. J., where an installation of a city-wide teletype system caused a saving in telephone and telegraph expense on messages sent throughout New Jersey and to other states, and in messenger service between headquarters and precinct stations, to more than pay the cost of the teletype machines exclusive of operators. In the 3½ years of the Newark municipal system, a total of 339,288 messages (100,000 a year) have been handled.

Messages broadcast by the New Jersey state-wide system from July 1, 1933, to June 30, 1934, numbered:

Alarms broadcast	13,242
Information requests	41,649
Miscellaneous messages	17,351
Total	72,242

The above messages, moreover, are completed cases; that is, they include the message sent out, all additional information transmitted in connection with that message, and all replies received thereto, so that the total use of the service probably amounts to several times as many transmits as the messages shown above. These alarms may receive either zone, state, or interstate broadcast, depending on the importance of the alarm and the information contained therein.

At this point, it is natural to wonder what results were obtained from the transmission of this vast number of alarms.

Results

Considering the 13,242 alarms broadcast over the New Jersey state-wide system, the records show that 1,452 of these cases were closed as a direct result of teletype, and even this figure does not represent the complete effectiveness of the teletype system, because there are many alarms that are canceled undoubtedly as a result of teletype but that cannot be positively so designated.

To evaluate fully the teletype system or any other system that leads to the actual apprehension of criminals, it is necessary to appreciate the significance of the individual cases thus settled by it. In the last 3½ years, the Newark municipal teletype system led to the closing of 5,418 cases. Consider the tremendous seriousness of just one of those cases, as cited by Michael P. Duffy, Director of Public Safety of that city:

"The police of Newark were searching for a demented man whose eccentricity was to fall down, pretending he had been injured by a passing car.

TELETYPEWRITER ROOM AT NEWARK, N. J.
Equipment, left to right: two teletypewriters; switchboard to cut in where desired; Postal and Western Union telegraph instruments

This man was well armed and considered a dangerous character. His description was placed on the New Jersey system and of course was transmitted into the neighboring states of New Jersey and Pennsylvania. Four hours later, the Philadelphia police sent a return message via the teletype system that he had been picked up. Examination of teletype records and investigation developed the fact that this man on May 8, 1935, had murdered Anna Schmid, a maid employed in Montclair, N. J. This man naturally might just as likely have been in any city throughout the area covered by teletype and is a clear-cut case in favor of the use of the teletype system in the apprehension of criminals and the protection of the police officers making the arrests."

Some police officials have the idea that teletype is to be used purely for the rapid dissemination of police alarms. Urgent police alarms, however, even in a big city, will not average more than 30 per day, which leaves ample time and incentive for putting the system to other uses.

NEWARK NJ TO NEWARK POLICE 5-25-35

FOLLOWING MESSAGE RELAYED RE-NWK 5669 NWK ALARM 4046

TO NEWARK NJ POLICE:

RE-JOSEPH MC KENNA ALIAS J.C.KELLY BE ADVISED THAT THIS MAN IS UNDER ARREST BY OUR 12TH POLICE DISTRICT HAVING BEEN PICKED UP ON HIGHWAY AND CLAIMING HE WAS STRUCK BY AN AUTO BUT THERE ARE NO SIGNS OF INJURY. HAVE YOU RECOVERED THE CAR. IF NOT FORWARD US A COMPLETE DESCRIPTION OF SAME. ADVISE..

JOSEPH A LE STRANGE SUPT. PHILA. PA POLICE.

2-58 PM JM.

COPY

THE MESSAGE FROM PHILADELPHIA THAT CLOSED THE IMPORTANT CASE DESCRIBED AT THE LEFT

Many Other Vital Uses

Some of the extra uses of teletype consist of requests sent to the various state capitals for data on motor vehicles and drivers, vital statistics, and other data obtained from state departments. In fact, miscellaneous messages of all kinds from one police department to another are sent by teletype, thus saving not only telephone and telegraph expense, but also clerical work and time.

To the policeman there is an educational value in teletype that transcends books and verbal instructions. Put a police recruit on the teletype and he will have before him the march of police events in several states and particularly his own state.

Of even greater importance is the opportunity to build complete police records. Every description of a wanted man that comes over the wire is the description of a man who some day may be wanted or apprehended in your city, and it is well to have a record of him. The departments which are using the teletype system recognize that it would now be impossible to function efficiently without it. If it were only an increased burden of work, they would not feel this way about it.

The value of the service is not only in bringing all the important police departments into intimate touch with each other, *but in leaving records of all these contacts as well.* Permanent records of police information and departmental orders are of the utmost importance to police officers. The responsible nature of their work demands written authority. Teletype not only furnishes this written record, but its authority in the case of arrests has been established, in New York State and New Jersey at least, by opinions of the Attorney General. Quoting the Attorney General of New York State:

"The teletype system is nothing more than an elaborate extension of a telegraph system particularly adapted to police work, making it possible by one transmission to broadcast to all police authorities in the system the fact that a crime has been committed and a description of the suspect. In my opinion, the receipt by a police officer of a message over the police teletype system authorizing the arrest of the suspect described therein (in such cases where the presence of a warrant of arrest is not required by statute) is ample authority."

It Supplements Telephone and Radio

What is the place of teletype in the great modern function of apprehending criminals? Can it replace other methods of communication, such as radio and telephone? The answer to this question as regards the telephone is obvious, in that the reporting of crimes must come from the citizens of the various states and the telephone must be used. As to the teletype vs. radio discussion, let the police themselves answer this question. Their viewpoint is expressed by Lieutenant J. E. Murname of the New Jersey State Police:

"Radio cannot be expected to replace wire facilities for interdepartmental and interstate communications; radio is still dependent on favorable weather and terrain; wave lengths are few and conflicting; radio does not give a typewritten record. Teletype cannot reach the mobile unit, the cruising car, or motorcycle. Teletype creates records; radio brings the information to the man on patrol. They work arm and hand—teletype is the police arm, radio is the hand whose fingers reach out and nab the violator. It is obvious, therefore, that teletype and radio supplement each other and one cannot be used to replace the other."

Another Lieutenant of Police has stated: "Teletype is selling itself to those who are using it properly."

The most intelligent response that could be given this by the police department of a key city not having teletype would be to send one of its men to a city having the service and let him remain there as an observer until he is thoroughly convinced as to its merits or demerits. The type of intelligence shown by such willingness to learn, with the cooperation of those cities having the service, would increase confidence in the police departments by responsible citizens, and greater respect and fear of them by those misguided persons who necessitate the weaving of a nation-wide net of communications.

Revision of Criminal Justice Machinery Urged

TO strengthen the public attack on the gangster, killer and thief, entire revision of criminal justice machinery is recommended to municipal officials by Donald C. Stone, of the Public Administration Service, Chicago. His proposals include abolition of the offices of sheriff and coroner; setting-up of state police forces; the elimination of politics from police and justice agencies; establishment of higher standards in recruiting policemen; extension of state-wide and local police training work; installation of improved records and identification systems in municipalities and as part of the state police; more thorough investigation of crime, with greater attention to minor complaints; unification of police and prosecution work, with the police maintaining legal staffs to aid in the preparation of cases; and the creation of a crime prevention bureau in each police department.

Mr. Stone has made many police and crime surveys, has assisted in setting up the nation-wide system of crime-reporting operated by the U. S. Department of Justice, and edits the Police Chiefs' News Letter, official organ of the International Association of Chiefs of Police.

Power of the National Government to Finance Competitive Enterprises of Cities

By HENRY T. HUNT
General Counsel, Federal Emergency Administration of Public Works

THE decision of the Federal Circuit Court of Appeals, Tenth Circuit, August 20, 1935 (*Kansas Gas & Electric Co. v. City of Independence, Kans.*), was with relation to constitutional and local questions raised by utility companies in some twenty-two suits in Federal and state courts seeking to restrain the performance of PWA loan and grant agreements to finance city power plants or other competitive enterprises.

The companies contend that Congress is without power to appropriate national funds for such purpose and that Secs. 202, 203 of Title II of the National Industrial Recovery Act, which authorize the President to finance municipal enterprises, are an unconstitutional delegation of legislative power. They also contend that even if the power of Congress to appropriate money to promote the general welfare is admitted, the financing agreements are unauthorized because the welfare promoted is not general but merely local. All the bills also allege that the agreements unlawfully delegate the legislative power of the city governing body to the Public Works Administrator. The bills further raise questions under the laws of the states.

In some of the suits referred to, the Administrator has been joined as a party defendant; in others he has been made a defendant upon his own motion; in a third class he has appeared through counsel as amicus curiae.

Constitutionality of the Government's Action

In every suit the Government has denied that the performance of the agreement (purchase of the city's bonds issued under authority of state law and the grant) will cause any legal injury to the utility company. Whatever loss may occur to it is due not to the Government's action but to the exercise of powers given the city by state law.

The Supreme Court of the United States in many cases has decided that the legality of government action may not be challenged unless it will result in or threaten legal injury. The cases are collected in *New Jersey v. Sargent*, 269 U. S. 328.

The Government also claims that in any event Title II, Secs. 202, 203, is a constitutional exercise of the power of Congress to levy taxes and by implication to appropriate funds under the authority of Article I, Section 8, clause 1 of the Constitution, implemented by clause 18 (the coefficient clause); also that Article IV, Section 3, clause 2 empowers Congress to dispose of any property, including money, of the United States.

The Administrator's counsel has further pointed out that PWA is a fiscal agency similar to the first and second United States Banks sustained in *McCulloch v. Maryland*, 4 Wheat. 316, and the Farm Loan Bank sustained in *Smith v. Kansas City Title & Trust Co.*, 255 U. S. 180.

Power to Tax Necessarily Includes Power to Appropriate

Article I, Section 8, clause 1 of the Constitution of the United States provides: "The Congress shall have power to lay and collect taxes, duties, imposes and excises, to * * provide for the * * general welfare of the United States." The power expressly conferred to provide for the general welfare necessarily includes the power to appropriate funds therefor. The determination of what is the general welfare and what will provide for it is for Congress. It has determined by the Recovery Act that the provision of employment through the financing and construction of municipal enterprises by the Government's purchase of municipal bonds is for the general welfare. While each project financed is, considered by itself, local, the aggregate of the approximately 30,000 projects financed by PWA is general.

With regard to the point of delegation of power, the answer has been that expenditure of funds appropriated by Congress is an executive function and that there is no delegation of legislative power. Article II, Section 1 provides: "The executive power shall be vested in a President of the United States of America." The expenditure of funds is executive. The selection of projects for inclusion in the comprehensive program is administrative and not legislative. The cases in which the Supreme Court has stricken down Acts of Congress on the ground that they illegally confer legislative power on the Executive are those Acts where the Executive is authorized to make rules of conduct with sanctions.

"General Welfare" Construed

The decision of the Tenth Circuit sustains the construction placed upon Article I, Section 8, clause 1. That Court says:

"We conclude that Section 8 of Article I gives Congress the power of taxation and limits the purposes for which taxes may be levied and appropriated, namely, to pay the debts and provide for the common defense and general welfare of the United States.

"We further conclude that the phrase 'general welfare' is not limited by the specifically enumerated powers, but that the welfare must be national or general as contradistinguished from local or special.

"Does Title II of the National Industrial Recovery Act, in authorizing loans and grants to the states and municipalities for constructing public works or projects, provide for the 'general welfare,' as we have construed those words in the Constitution?

"That is a question to be determined in the first instance by the Congress, and in determining what will provide for the general welfare, Congress must be accorded wide discretion. With its determination the courts may not interfere unless it clearly and indubitably appears that the purpose for which a tax is to be laid, collected and appropriated is not within the limitations fixed by the Constitution. * * *

"The Act authorizes the President to create a Federal Emergency Administration of Public Works, to be administered by an 'Administrator.' It provides that the Administrator shall provide a comprehensive program of public works.

"It authorizes and, we think, directs the President, within specified limits and in the exercise of a reasonable administrative discretion, to make the loans and grants provided for in section 203 to projects included in the program.

"True, such a public works project, when viewed by itself, is local in character; however, when viewed as an integral part of a comprehensive plan and program, it may be national in scope and character. * * *

"Nor does the Federal Government by making loans and grants under this Act encroach on the sovereign rights of the states. * * * It simply advances funds by loans or grants to states and their agencies, to carry out their own powers to construct public projects, for the purpose of promoting the general welfare of the United States.

"With the wisdom or expediency of the Act we are not concerned. Those are questions exclusively for legislative determination. * * *

"The making of such a loan or grant is administrative rather than legislative in character. * * *

"We conclude that Congress, at least as to the classes of projects specifically enumerated, lays down a legislative standard and declares a legislative policy with requisite definiteness, and impliedly directs the President to effectuate the purposes of the Act and to make loans and grants, within the limits of a reasonable administrative discretion, to projects that fall within the classes enumerated in section 202 and the limitations of sections 203 and 206, and that, while Title II grants broad administrative authority and discretion, it does not unconstitutionally delegate legislative power."

The Court found, however, that the law of Kansas requires a two-thirds vote for a new project as distinguished from the enlargement of an existing project, and that as only a majority vote had been obtained, the law of Kansas had not been complied with.

The Kennett Case

The Circuit Court of Appeals of the Eighth Circuit, in *Arkansas-Missouri Power Co. v. City of Kennett, Mo.* (August 15, 1935), affirmed the opinion of the Court below that the power company was in no position to question the power of the Federal Government to loan or give money to the city. The appellate court said:

"We are in accord. The United States is not proposing to become a competitor of the Power Company. It will have no right, title or interest in the plant when completed and nothing to do with operating it. The destruction of the Power Company's property will come about by reason of the city's operation of the plant when erected. The position of the United States is that of a lender of money, a buyer of bonds, and a giver of gifts. True, the money procured from the Government will enable the city to build the plant, and, if the city builds a plant, it will no doubt operate it, and when it does operate the plant the city will take the customers of the Power Company, and the Company's property in Kennett will become worthless or greatly impaired in value. We know of no rule of law, however, which permits one indirectly hurt, no matter how seriously, by a Government expenditure, to question the power of the Government to make it. In fact, the rule is to the contrary."

The Court, however, found that the construction regulations of the loan agreement unlawfully delegate the powers of the City Council to the Administrator, and enjoined performance on that ground. The Legal Division of PWA is in process of amending this and like agreements in such manner as to avoid this defect.

Three Other Cases

The Circuit Court of Appeals of the Ninth Circuit has before it a like suit with regard to the loan agreement with the city of Coeur d'Alene, Idaho. That case was submitted on May 2, and a decision is expected shortly.

The first suit to reach the Supreme Court of the United States will probably be that of *Kansas Utilities Co. v. City of Burlington, Kans.* The Supreme Court of Kansas ordered the bill dismissed on the ground that the Administrator was an indispensable party and was not joined. The Company has applied to the Supreme Court for a writ of certiorari, which will be passed upon at the October term. It is believed improbable that the Court will grant the writ, as the constitutional questions are not necessarily involved in this case.

Another case, involving loan and grant to the city of Hominy, Okla., is pending in the Court of Appeals for the District of Columbia and will be determined in its October term. It is believed that that Court will reach the same conclusions as the Eighth Circuit Court of Appeal with regard to the spending power of Congress. Any other conclusion would be inconsistent with the practice of the executive and legislative departments of the United States Government since its institution.

Street Cleaning by Hand—Part of Work Relief Program

By **FRANCIS B. KENNEY**
Surveyor, Department of Highways, Manchester, N. H.

AT present all our street cleaning is done by hand labor. The city owns a Springfield motor sweeper, which was used until a few years ago, but its use was discontinued in order that more men might be put to work. There are twelve men with "hokey" carts who cover the streets in the business district. They start out at 4 in the morning, thereby finishing before the heavy traffic.

In the spring and fall all the gutters and catch-basins are cleaned. Up to a few years ago the catch-basins were cleaned only in the fall, but owing to the increased amount of sand used on icy streets in recent years, this operation has had to be repeated again in the spring. Long-handled scoops and dippers are used for removing the material from the catch-basins, and then the refuse is shoveled into trucks and hauled away to the dump.

The Department of Highways has a fleet of thirteen trucks and two horse-drawn vehicles to take care of the street cleaning problem. There are 74 men and one superintendent in the Street Cleaning Department. All refuse removed from the streets is deposited at a central dump about two miles outside the city limits.

The parked car is a real problem in Manchester only at certain hours of the day. Manchester has an ordinance forbidding all-night parking on any of the streets, and this ordinance is rigidly enforced by the Police Department. In the business district there is limited parking on most of the streets, one hour being the maximum time allowed for a car to remain parked at one point. Double parking is also banned on all our streets. Parking is prohibited on all crosswalks, in front of driveways, and within 10 feet of any street intersection. We are now equipping our Street Cleaning Department with new trucks.

PWA Funds for Cast Iron Pipe

Eleven Miles of New Main Replaced Old Wood-Stave Line

By JOHN T. WOODSON
Lynchburg Foundry Company

UPON half completing replacement of the wood-stave Pedlar gravity line with 36-inch cast iron pipe on March 1, 1935, the city of Lynchburg, Va., at a cost of $560,000 brought to a satisfactory close the first PWA project initiated in Virginia. This highly successful venture required one year to complete, and with the installation of the cast iron line, the 42,000 inhabitants of the city are assured of a continued supply of almost chemically pure water direct from a lake impounded in the famous Blue Ridge Mountains 21 miles north of Lynchburg.

Unemployment Relief Labor Used

Replacement of the aqueduct in 1934 and 1935 was carried out for a twofold purpose. Primarily, it was to provide employment for heads of families without work, but it was also regarded as necessary because the old California redwood stave pipe was beginning to spring leaks of considerable proportion, causing increasing trouble. Although the line might have held for several years longer, it was thought advisable to undertake the project as promptly as possible.

Early in the autumn of 1933, it was decided to replace a nine-mile section of the Pedlar aqueduct lying between the James River and a point two miles below the reservoir lake in the mountains, leaving the rest of the wood-and-steel line intact south of the James to the city. Two miles of 36-inch cast iron pipe had been laid immediately below the dam over a period of several years.

PWA Funds Sought

These plans met with immediate and favorable response from the City Council, which was desirous of finding remunerative jobs for many good citizens who had begun to feel the pinch of depression. Instead of floating its own bond issue, the Water Department of Lynchburg turned to the Public Works Administration at Washington, just being completely organized, for funds to finance the project.

A PWA loan-grant contract under the so-called "70-30" plan was secured, binding the Water Department to the issuance of $450,000 in bonds and the United States to a grant of $150,000, or a total of $600,000.

While negotiations for the PWA loan were being perfected, the city entered into a contract with the Lynchburg Foundry Co. for 48,036 feet of 36-inch, bell-and-spigot cast iron pipe, manufactured along with the fittings at the Radford, Va., branch of the company. This pipe was of classes A and B, high tensile, with a small amount of Class B and C AWWA standard for the high-pressure areas.

Arrangements had been made to begin work as early as possible. Through the city relief bureau, 250 men were obtained for the project, selected because of physical fitness, ability and willingness to work. A camp was fitted out for the convenience of the men, who worked in shifts of one hundred each, thus obtaining the required number of hours weekly. They were paid according to PWA wage scales.

In a short time the pipe began to arrive, and the city contracted with Camden & Younger, of Elon, Va., to haul it to the scene of operations. A great deal of it was hauled before the corps of workmen had begun to dig the trench.

Digging and Laying

All preliminary work was completed and the camp set up ready for the principal construction work to begin March 1, 1934. On a bitter-cold night, February 28, the first shift of 100-odd men traveled from Lynchburg to their camp in the wilds of the Blue Ridge. The next day the group set to work digging a trench 6 feet deep and 5 feet wide, paralleling the wooden stave pipe 6 feet away. Rapid progress was made, despite the fact that the trenching force frequently encountered hard rock which had to be blasted.

When sufficient trench was dug, the pipe-laying crew set to work equipped with a crawler tractor fitted out with a side boom to hoist the heavy pipe into place. These were fitted together in the bottom of the trench and joined with Leadite.

Sections of the newly laid pipe were put into operation as soon as practicable, four cut-ins being made before the replacement was completed down to the James River. Whenever these connections were made, the pressure on the gravity line was cut off, and occasionally the city was forced to rely on the James River source.

Net Results

The net result of this work was, first, to give employment for a year to 40 per cent of the heads of families on relief in Lynchburg. The man-hours gained by the relief workmen totaled slightly more than 300,000 at 45 cents an hour. In addition, 131,810 man-hours were afforded Radford foundry employees, many of whom had been without work, and 12,244 hours to citizens of Amherst, Va., engaged by Camden & Younger to haul the pipe. This makes a grand total of 444,054 man-hours, exclusive of time spent by railroad employees in handling 498 carloads of pipe, or more than 5 trainloads, and those who supplied the foundry with raw ore and materials.

Although a capital expenditure of $600,000 was originally planned, it was found that the replacement project cost no more than $560,000 when construction materials were salvaged. The Water Department issued $425,000 in bonds, $25,000 less than first authorized. A grant of $135,000 was received from the PWA, enabling the city to pay high wages to its unskilled and skilled labor.

As to amortization of the debt, the city of Lynchburg regards that to be a small matter. With no increase in water rates, it will easily retire the bonds serially, a block ranging between $10,000 and $20,000 annually.

Building a Little Theater into the Library as a Public Works Project

By CLARENCE ARTHUR PERRY
Russell Sage Foundation

AMONG the facilities for a more abundant life which have grown out of the depression, there must now be counted some amateur playhouses in connection with branch public libraries. Many library buildings throughout the country have contained ordinary assembly rooms and, here and there, a real stage. It has remained for New York City, however, to realize the full dramatic possibilities available in library meeting rooms.

During the last year, the New York Public Library has provided seven of its auditoriums with compact, well-equipped stages. Each building presented a peculiar problem. In one case the auditorium did contain a stage of sorts, located at the middle of one of the side walls and confronted by supporting columns which obstructed the vision of the audience. The old stage was demolished and a new one was constructed at the end of the room. The seating capacity was increased from 150 to 200, and an adequate system of theatrical lighting was installed. Four murals, painted by a Negro artist, now adorn the auditorium walls.

In another branch, a new stage, 30 by 14 feet, having a proscenium arch 16 feet wide, was constructed. One branch building had a small basement room which was of no particular value. This space was rehabilitated and furnished with a children's theater, a small stage 15 by 10 feet, and cyclorama instead of scenery.

One of the branches had an auditorium that was almost square. If a stage had been inserted in the room as it was, good seating arrangements for the whole audience would have been impossible. There happened to be, however, a fuel storage room just off the auditorium with a floor of the right height for a stage. By taking down the separating wall, it was possible to turn the coal-bin into a stage. Lighting installations were made, equipment for stage settings provided, and the walls were brightened by a judicious scheme of redecoration. The seating capacity of the largest of these little theaters is 300.

The Library, fortunately, had on its staff a person who was qualified to design and to oversee the construction of these new stages. The remaining expense for materials and labor was provided from relief funds. The Library authorities are so well satisfied with the results of this effort that they are planning to continue it under the Federal Works Progress Administration with a project which will result in the transformation of six or seven more auditoriums into satisfactory little theaters.

When one considers how much the amateur producer has to rely upon books and prints—especially in historical and costume plays—the suitability of providing little theaters in branch libraries becomes evident. For a long time library workers have been accustomed to preparing special reference lists on books of the theater, on plays suitable for various classes, and arranging exhibits of pictorial material—all for the sake of stimulating an interest in the best drama. A theater close at hand should make their efforts still more fruitful.

The ordinary city neighborhood has usually the elements required to compose a little theater group. People who like to act, and ex-actors who are qualified to direct, are to be found in most residential neighborhoods. But the place in which to play is not so available. Lodges, churches, and schools have assembly rooms, but few of them have the lighting equipment, dressing rooms and other facilities required for worth-while theatrical production. Providing suitable playhouses becomes therefore a practical method for encouraging both young and old to engage in a delightful pastime, and one which has cultural and, in some cases, vocational values. It is also a method for nourishing an audience that will demand the best which the commercial theater can give.

Courtesy of New York Public Library
STAGE AT HUDSON PARK BRANCH, NEW YORK PUBLIC LIBRARY

The present need of work projects which are obviously in the public interest and which will not be provided by commercial enterprise, makes this a propitious time for thinking about building little theaters in branch libraries. This can be accomplished in any one of three ways: (a) converting an existing library assembly room into a little theater; (b) adding a little theater extension to an existing library building; or (c) constructing a new library building with a little theater incorporated in it.

More detailed information about the New York City projects and this subject as a whole can be found in two articles in the *Library Journal* of May 15, 1935. For free reprints of these articles address Department of Recreation, Russell Sage Foundation, 130 East 22nd Street, New York.

Lubrication of the City's Machines

By ALDEN W. WELCH
Research Editor, The American City

The ten-million-dollar bill for oils and greases is only part of the story: the cost in machine wear, replacement of parts, labor in repairs, interruption of service due to improper lubrication, bring this subject into the range of mayor and councilmen as well as that of the superintendents directly in charge of the city's machines. It is a taxpayers' story.

MONEY is said to be the lubricant of business and government. The very fact that the most important material item in the world, money, is compared with oils and greases is suggestive of the vital role these homely commodities play in the actual mechanical operation of civilization. Their absence or deficiency is observed at once, through phenomena varying from squeaks to expensive damage to plant. It is their overwhelming importance, which makes them a prime necessity and omnipresent, that causes them to be taken for granted, overlooked, hardly ever thought of except by the man who uses them, the man who selects and specifies them, and the man who purchases them.

These three men have a much greater responsibility than is defined by the titles of their jobs. The first man knows whether or not the machinery he tends is functioning properly—whether it is running smoothly, regularly, evenly, quietly, continuously, coolly, economically, or whether it is balky, noisy, hot, inefficient. He frequently knows and more often suspects that the wrong lubricant is being used; but it isn't his job, he thinks, to present his views.

The second man, who orders the oils and greases and specifies what they shall be, may be conscientious, but certainly he is human—which is to say both self-opinionated and susceptible to skillful sales arguments. Regarding a particular quality of grease, a plant official told a chemist that he could tell more about this quality by sticking his pencil into the grease than the chemist could with his rather intricate penetration test. On relating this incident, the chemist said: "I didn't answer him; what was the use?" Yet that man with his greasy pencil can cut down the useful life of the most expensive machinery, destroy the value of amortization plans, cast shadows on the reputations of manufacturers, and waste public funds. On the other hand, if he is what is called "open-minded" he may be too easily persuaded to experiment with other brands of lubricants than those which the manufacturer has told him should be used with a certain machine.

The third man, the purchasing agent, is interested in price. As H. T. Bennett and R. G. Story, of the Mid-Continent Petroleum Corporation, have well said: "The ultimate aim in the purchase of lubricating oils is to procure the best product at the minimum price. The problem then arises as to the best product." This indeed is the sublimation of the creed of all purchasing. The agent is instructed to procure so many gallons or barrels of such-and-such lubricating oil. In some cities he goes ahead and buys it, or something like it, at the lowest price quoted. In other cities he is provided with specifications ranging from the simple to the complex. There are tests for gravity, flash, fire, demulsibility, emulsibility, viscosity and pour. Here are the oils submitted. Which one that meets the tests has the lowest price? This naturally is the oil that is selected, and yet, as James G. O'Neill, Chief Chemist of the United States Naval Engineering Station, Annapolis, has pointed out: "Lubricating oils for turbines, diesel engines and aviation engines may show by the standard tests to have properties that are in accordance with oils that are known to be satisfactory, yet they may be very unsuitable."

Specify? Or Take Manufacturers' Say-So?

According to Mr. O'Neill, the standard tests are of value when they cover a narrow range of oils made from a crude and by processes of refinement that are known to yield satisfactory oils, but when such specifications are used for oils made from widely different crudes or by widely different methods of refinement, their value is very doubtful.

In other words, specifications, however carefully drawn, may have useful application to only one producer. This is because the crude product from which the lubricating oils are made has widely varying qualities. In one area it has a certain set of qualities; in another area it has another set of qualities. And though the oils made from these two crudes may look alike and feel and cost the same, they produce quite different results when used in a certain machine.

Crude oil is a raw product. So is iron ore. But whereas iron ore when smelted always produces iron, crude oil when refined produces many chemical formulas. This is because the basic substance found in one field is different from that gushing in another. Both are called petroleum, and are superficially the same, but intrinsically different. Both will burn and both will lubricate, though not with equal satisfaction in a given machine.

This is a rather profound subject. Offhand one would say it is for specialists, not for the layman. But in this curiously constituted world, it is usually the well-known layman who must see to it that specialists are provided in a given department of activity or there is likely to be no specialist there.

Wrong Oil and Short Machine Life

But the little things do count, and proper lubrication is the little difference between long life and short life—

whether it be a man, an organization or a machine. In the case of the machine, it is important that Jim and Jake do not merely intend to employ the proper oils and greases, but also that they know how to obtain them and do obtain them. Even the mayor and councilmen, let alone the department heads and engineers, might profitably to the city devote a few hours toward making sure that the whole matter of machine lubrication is being properly handled.

As with a great many intricate subjects, a very little technical knowledge is needed in order for the executive to assure favorable results. The most important thing is for the official to recognize the need for action; the next requirement is for him to know how to proceed in order to get it.

A library could be very large and yet contain only books, magazines, pamphlets, and papers on the subject of lubrication. The process extends into every field where machines are employed, and every type of machine is a study in itself. An expert speaking on the oils and greases to be used in lubricating construction machinery says: "It is invariably incumbent on the operator to accept such recommendations as may be made by the representative of the lubricant manufacturer as to the selection of such lubricating oils as may be required for given purposes, in the absence of definite recommendations which the manufacturer of such equipment may make."

The municipalities of the United States purchase and use millions of dollars' worth of lubricants each year. The motor vehicles alone that are owned by the cities require more than two million dollars' worth of oils and greases to keep them running, and this expense is mounting annually. Take three municipalities at random. Long Beach, Calif., in 1928 owned 105 trucks, and now owns 150; its fleet of 117 passenger cars now numbers 137; its 31 tractors are now 39; of the following vehicles, it owned none in 1928 but now has 1 flusher, 2 ambulances, 12 motorcycles, 4 rollers, 12 graders; and this year expects to purchase 10 trucks, 12 cars and 8 motorcycles. Phoenix had 41 trucks; it now has 57; in all, 121 motor vehicles against 44 six years ago. Then the District of Columbia owned 346 trucks, today 581; it had 211 cars, now 353; in all, 707 motor vehicles compared with 1,111 now. Here is a gain of 587 vehicles or 60 per cent for three cities in six years, and an added cost of $7,000 per year for oils and greases. The right lubricants are of course those that give the longest efficient life to the equipment. It would hardly be economy to save 10 per cent on the price of the lubricants and lose 10 per cent of the use from $400,000 worth of equipment.

Is the oil low? Fill her up. This practice creates the impression that a cheap lubricant is as satisfactory as the more expensive products and therefore more economical to use. This is not sound reasoning. Of greases, the expert previously quoted warns that "frequently greases are made to meet a price condition and the cheapest ingredients obtainable are used. The value of grease lubricants is dependent on the quality of the materials from which they are made and the care exercised in their manufacture." The cheap greases pit metallic surfaces and wear out the bearings.

Nor should price be the sole guide. A man in his private life does not always buy either the cheapest or the most expensive, but the article that most closely fits the need. Finicky specifications may not only result in exorbitant prices; they also somewhere indicate lack of knowledge of what actually is required. The specifications should always be drawn with the purpose of the product in view. For example, the most important requirement for a general-purpose machine oil to be used for hand oiling is viscosity, with pour also important if the lubricant is to be used outdoors in winter. Any other tests force the suppliers to quote on higher priced oils that are no more efficient for hand oiling.

Steam turbines and internal combustion engines, on the other hand, require lubricants that can stand long periods of continuous service without breaking down and forming objectionable deposits. These call for higher tests, including demulsibility and, where the machines are available, the Navy work factor test.

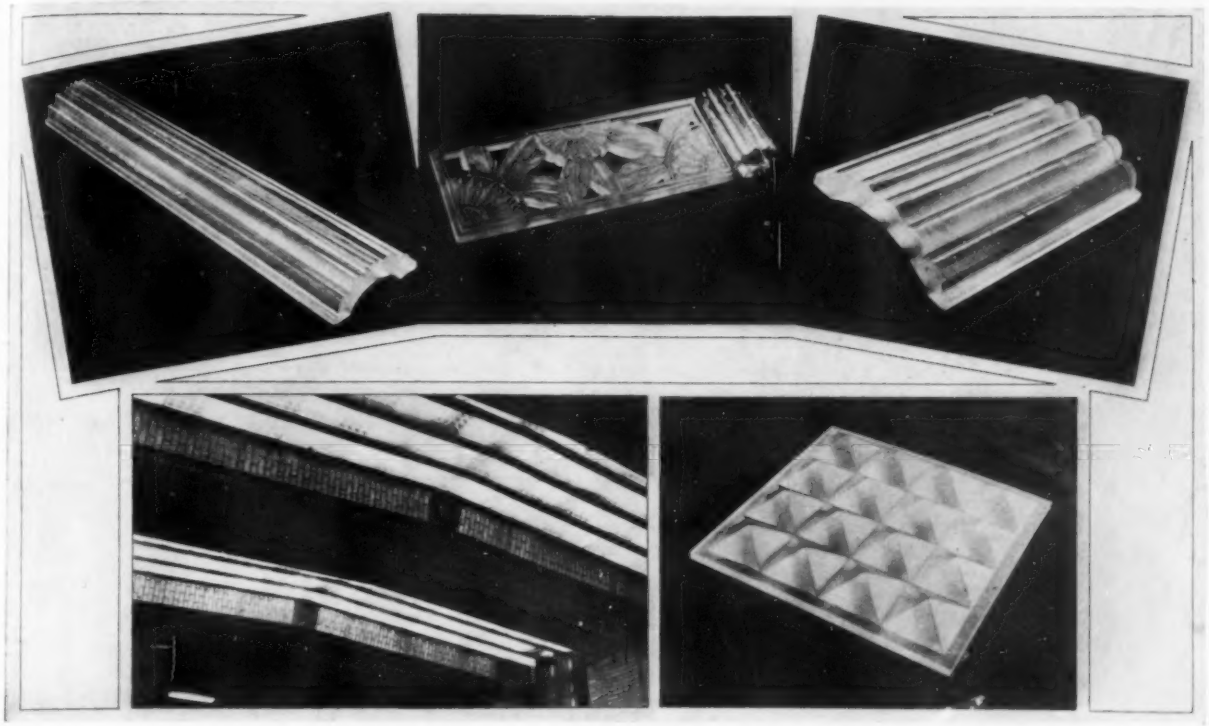
H. C. Major, Superintendent of Public Utilities, Rockville Center, N. Y., said recently that he did not write any specifications for lubricating oil or impose any conditions on the oil companies. "There are the engines," he says to these companies; "you have their specifications; you know what we want—we want results."

"And," he concluded, "they've done a fine job. They sell service with their oil."

Motorcycle Headquarters in Queensborough, L. I.

IN September the detachment of 23 motorcycles of New York City Police that policed the new Grand Central Parkway, Queensborough, New York City, and Squad 3 consisting of an acting captain, 3 lieutenants, 3 sergeants and 91 motorcycle policemen were consolidated.

TOP.—HEADQUARTERS, GRAND CENTRAL PARKWAY MOTORCYCLE PRECINCT, BOROUGH OF QUEENS, NEW YORK CITY. BOTTOM.—POLICE BOOTH, GRAND CENTRAL PARKWAY



STOCK SHAPES OF HEAT-RESISTING GLASS NOW AVAILABLE FOR BUILDING WORK

Left to right, beginning at top: grille 13 x 4¾ inches, suitable for ventilating apertures and to conceal light source; panel for interior and exterior lighting, in 3-foot lengths 5 inches wide; lighting panel for doors, moldings and other outdoor uses, length to 18 inches and weight 5.3 pounds per linear foot; architectural glass used as a ceiling illuminant in the chapel of the Home of Detention for Women, New York City; lighting panel 14¾ inches square, weighing 18½ pounds, used in chapel roof, as shown at left

Rugged Glass Presages New Type of Building

THE development of architectural glass, or the production of a glass that combines light-giving and decorative qualities with unusual strength, including imperviousness to heat and cold, may foreshadow a construction that will change the appearance of buildings and consequently of cities.

The new glass is none other than that friend of the kitchen, Pyrex, which filters out the heat rays and thus stands all temperature changes due to weather. It comes in the form of panels and can be used for partitions, like hollow tile, or to fill very large window spaces, forming great glass screens, or for exterior walls. In fact, the recent development of a new structural unit, 11¾ x 11¾ x 4 inches, opens up such large possibilities that certain architects already see the need for sitting down and making a profound study of the use of glass as a major building material.

The big thing that municipal officials can do is to understand, first of all, that such a material has been made available to the building industry. The next thing to understand is that it is not merely a glass brick or panel that has been manufactured, though this is all there is to see, but that an entirely different medium is at the disposal of the architectural profession.

A new type or style of architecture must come from (1) a new principle in design, (2) a new material, (3) a new human demand. Glass by its very nature has the makings of a revolutionary material. It is harder, smoother, more colorless, cleaner, than any other mass material. In addition to possessing these basic qualities, it is alone in being transparent, translucent, the nearest approach to a gem. Its disadvantage has been its fragility under abrasion and changes in temperature. This deficiency has already been corrected to an extent that makes architectural glass as suitable as any other non-load-bearing material. Its constitutional weakness is susceptibility to tensile stresses. Its resistance to crushing is superior to granite, concrete, vitrified brick and cast iron; but, interesting to note, the crushing of glass is due to tensions caused by unequal distribution of the load, rather than to compressions. Thus, unlike the universally used building materials, glass still holds mysteries, is capable of improvement, has still further possibilities than those already achieved. These improvements will come most quickly through the active cooperation of building owner with architect, and architect with glass maker. As one architect said recently: "We've got to learn to build in glass."

This architect made the further observation that the public building—municipal, state or Federal—is the last place in which he would care to do any pioneering. This is a serious indictment that should be squarely met—and refuted or admitted. For public buildings, theoretically

SWIFT, SKILLED, COURTEOUS SERVICE

SHE is one of 100,000 operators in the Bell System—local operators, special operators for the dial system, toll operators, information operators and many others—all specialists in giving you efficient telephone service.

The alert, friendly voice of the operator is familiar to all who use the telephone. Through the years it has come to mean more than a voice. It is the symbol of politeness and efficiency.

The manner of this service is as important as the method. Even a few words can reflect a business-like, courteous attitude.

The operators in the Bell System are carefully trained. But there is something more to it than training—a spirit of loyalty and of pride in rendering an important service. This spirit is ever-present—it has brought especially high commendation in time of emergency.

Truly the telephone operators have been called "Weavers of Speech." Their swift, skilled fingers intertwine the voices and activities of communities and continents. For daily, as upon a magic loom, the world is bound together by telephone.

BELL TELEPHONE SYSTEM

There are 270,000 workers in the Bell System. The 100,000 telephone operators are able to serve you as they do because of the specialized ability of 170,000 other employees—installers, linemen, repairmen, construction crews, engineers, commercial office workers and the many thousands engaged in research, manufacture and management.

owned by all the people, should provide the best opportunities for sound pioneering by engineers and craftsmen. Municipal officials have the opportunity to suggest the possible use of glass. It may be just the suggestion or encouragement the architect needs to set him thinking in a direction that will take him away from the storied past and that will endow the city with a building that will fit the present and greet the future.

Illustrated herewith are several panels made by the Corning-Steuben Division of the Corning Glass Works, a division which was created in response to the growing demand for architectural glass. The various units are not products devised and offered for sale by the manufacturer, but are panels that have been designed by architects for constructions in several outstanding buildings. The most notable example of municipal use is in the roof of the chapel of the New York House of Detention for Women.

In this model prison building, about three years old, the spaces between the brick ceiling beams are filled in with Pyrex heat-resisting glass in panels 14⅜ inches square. Behind these stout glass screens are electric bulbs which not only light the windowless chapel but are safeguarded from possible misuse by the inmates as well. The matted surface of the glass panels spreads the light, ironing out to some extent the spottiness resulting from the bulb type of light source. Further illumination is provided by glass lighting panels in the ceiling of the balcony over the main floor, and also in the underside of the balcony.

The first refutation of the charge that public officials are too politically minded to appreciate the possibilities of the proper use of architectural glass came when Austin H. MacCormick, Commissioner of the Department of Correction, New York City, read this article in manuscript. "What are the possibilities," he asked at once, "of building a prison entirely of glass brick?"

Fire Is the Best Thing—Out

By **RUSSELL FREY**

Secretary, Lakewood Chamber of Commerce

IN LAKEWOOD we find that fire prevention pays. In 1920 our fire loss was $12.51 per capita. In 1934 it had dropped to 46 cents per capita. Our lowest loss on record was 11 cents per capita in 1933. Low fire losses are due, among other causes, to education of firemen in the use of small hose lines, which reduce water damage to a minimum.

In addition to having a town inspection, it is advantageous to follow it up with inspections by members of the Fire Prevention Committee cooperating with the Fire Chief.

The Chairman of our Committee, C. E. DuCharme, who has had long experience in the fire-insurance field, undertook a thorough inspection of all schools, churches, theaters and private sanitariums, in conjunction with the Fire Department. Mr. DuCharme prepared a written report of each inspection which contained a description and diagram of the structure, and a list of recommendations to make the building more safe from the standpoint of fire and loss of life.

Results of the Reports

A copy of each report was sent by Fire Chief Delaney to the responsible parties in charge of the individual properties. Far-reaching results have been accomplished. The only school building considered a serious fire-trap, and one which easily could have caused a large loss of life, was abandoned for school purposes the next year, as a result of the survey. It is our intention to further this special activity by personal inspection of industrial plants.

A year after the Cleveland Clinic disaster the Chairman personally made an inspection of the local municipal hospital, which revealed the storage of X-ray films in wood cases. An immediate report to city authorities resulted in the purchase of metal cabinets for film storage.

While firemen make monthly inspections of all mercantile buildings, the Fire Prevention Committee has found it advantageous occasionally to make inspections in congested districts.

During Fire Prevention Week last year forty business establishments were inspected by the committee. Half of this number were open to criticism. Twelve out of the twenty were criticized for defective wiring, involving makeshift or temporary electric-light cords hung on nails or over piping, and in some cases paper shades over high-powered electric-light bulbs were found. Where chemical extinguishers were installed, three were found empty and several badly in need of recharging.

The Lakewood Fire and Police Departments, working hand-in-hand, have to a large extent discouraged the turning-in of false alarms, by apprehending the so-called "thrill-seekers" who turn in alarms just for the fun of it.

The Chamber of Commerce Attitude

There are still many chambers of commerce and similar organizations which do nothing, or close to nothing, to promote fire prevention. Some chambers give the reason that the fire-insurance agents in their cities do not help support their organization, and why should they help the cause of fire insurance?

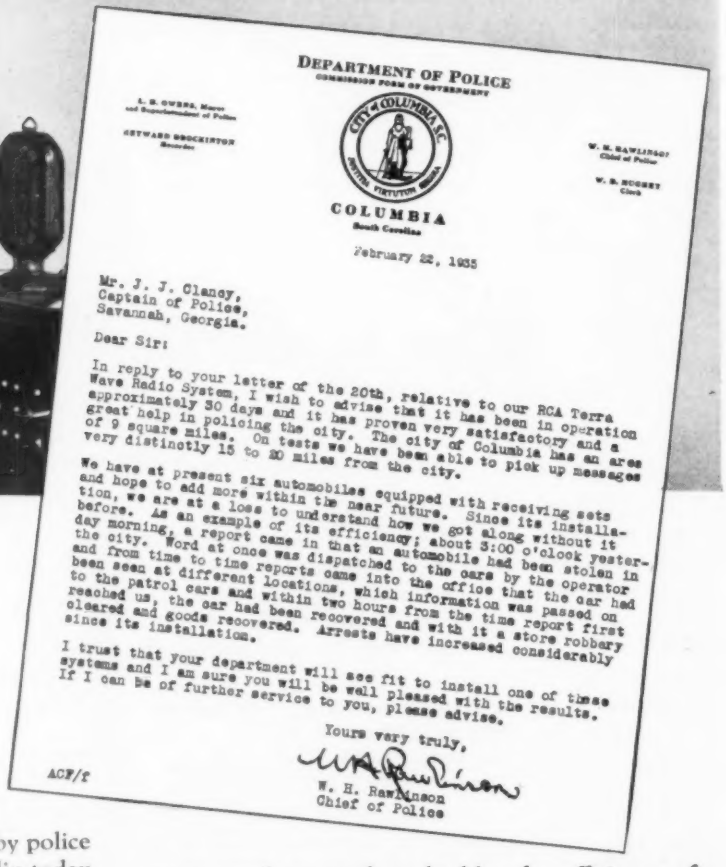
Well, of course, both the organization and the agents are wrong. First of all, any chamber of commerce holding that attitude is shortsighted. Second, every fire-insurance agent and, if possible, every fire-insurance company representative should belong to the local chamber of commerce, for many valuable suggestions come from this source. If there is no need for a fire-prevention program, there is no need for a chamber of commerce.

Most of those engaged in commercial organization work will agree that *there are few promotions which will give quicker results or a greater return in dollars and cents than a fire-prevention program.* Sixty per cent of the factories destroyed by fire never rebuild or resume operations.

"RCA Terra-Wave Radio System— a great help in policing the city"

—*Columbia, S. C., Chief of Police*

Mr. W. H. Rawlinson, Chief of Police, Columbia, S. C., at the microphone of his RCA Terra-Wave Police Radio Transmitter



DEPARTMENT OF POLICE
COMMISSION FORM OF GOVERNMENT

COLUMBIA
South Carolina

February 22, 1935

Mr. J. J. Clancy,
Captain of Police,
Savannah, Georgia.

Dear Sir:

In reply to your letter of the 20th, relative to our RCA Terra Wave Radio System, I wish to advise that it has been in operation approximately 30 days and it has proven very satisfactory and a great help in policing the city. The city of Columbia has an area of 9 square miles. On tests we have been able to pick up messages very distinctly 15 to 20 miles from the city.

We have at present six automobiles equipped with receiving sets and hope to add more within the near future. Since its installation, we are at a loss to understand how we got along without it before. As an example of its efficiency; about 3:00 o'clock yesterday morning, a report came in that an automobile had been stolen in the city. Word at once was dispatched to the cars by the operator and from time to time reports came into the office that the car had been seen at different locations, which information was passed on to the patrol cars and within two hours from the time report first reached us, the car had been recovered and with it a store robbary cleared and goods recovered. Arrests have increased considerably since its installation.

I trust that your department will see fit to install one of these systems and I am sure you will be well pleased with the results. If I can be of further service to you, please advise.

Yours very truly,

W. H. Rawlinson
Chief of Police

ACF/f

THIS letter is typical of many written by police chiefs in all parts of the country. Radio today is an essential to effective police work. Be sure it is RCA Terra-Wave, the remarkable system that uses ground waves only, thus preventing interference with other transmitters, and greatly lessening the effects of static. Reliable communication through thunderstorms is the rule rather than the exception.

2-Way Communication Added

Since Chief Rawlinson wrote his letter, we have added 2-Way Communication, offering the new Mobile Transmitter for scout cars. Now these cars can communicate instantly with headquarters, reporting direction from the scene. This new development much more than doubles the efficiency of the department. No longer need it be necessary for motorized officers to find a telephone in order to give the chief an emergency report; they close a switch and talk by radio, without stopping their car! This compact, rugged, low-cost equipment is a product of the RCA laboratories, embodying the unique RCA experience in building transmitters for broadcasting stations, for the Army and Navy, for ships and airplanes. No wonder it performs so astoundingly! It is the most sensational contribution to crime control since RCA Terra-Wave itself was first introduced. Criminals today are learning to flee the town that uses RCA Terra-Wave Police Radio.

Sales and Service Representatives in Principal Cities

RCA TERRA-WAVE POLICE RADIO SYSTEM

RCA MANUFACTURING COMPANY, INC.—CAMDEN, NEW JERSEY

A Radio Corporation of America Subsidiary

FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Years of Park Progress in Indianapolis

INDIANAPOLIS, IND.—It pays to survey a group of years, rather than single twelve-month periods, when one is estimating progress during difficult times. The long look is often reassuring. Such is the case as one contemplates the gains in park and boulevard development in Indianapolis.

During the years 1930-1935 there has been only one bond issue, amounting to $12,500, for our park development. The present budget is $200,000 lower than it was in 1929, and there are 97 fewer employees in the Department. Nevertheless, there have been 32 individual improvements, including extensive additions to the boulevards, and the installation of several new parks in the 3,000-acre park system. Through the CWA and the FERA the Federal Government has given assistance in providing labor and some materials.

The parkway and boulevard construction and improvement have increased convenience and attractiveness in different parts of the city, and new walks and curbs have added to the finished appearance of walks and drives. The Garden of Botany and Birds, northeast of the city, has been improved, and the old bear pit in Riverside Park has become a rock garden. The planting of 250,000 trees and shrubs in the parks as a reforestation project is an outstanding undertaking. New bridges, a new lake, much enjoyed last winter for ice skating, and a new complete water system in Garfield Park, are other features of improvement.

The reconstruction of the Coffin golf course to make possible the building of the United States Veterans' Hospital on its present site, in 1933, was an important change. In that year the profit from the golf course dropped to $5,963, and in 1934 there was a golf course deficit of $8,405, owing to the policy of converting receipts into a wide variety of capital improvements. The long look back, however, shows the cheering change that took place in 1930, the first year of the present park administration, when a profit of $25,808 from the golf

GARFIELD PARK SHELTER HOUSE, INDIANAPOLIS

EMERGENCY BOULEVARD SERVICE
The INDIANAPOLIS PARK DEPARTMENT
MAINTAINS 60 MILES of Beautiful Scenic BOULEVARDS.
HELP US KEEP THEM in GOOD CONDITION. REPORT ANY DEFECTS to
BOARD of PARK COMMISSIONERS City Hall
PARK DEPT.
316

EMERGENCY BOULEVARD SERVICE TRUCK, INDIANAPOLIS

INDIANAPOLIS MAINTAINS THIS NURSERY IN RIVERSIDE PARK

MODERNIZED TAX ACCOUNTING

IN CUYAHOGA COUNTY, OHIO

QUESTION: How long does it take Cuyahoga County (with 385,000 parcels of real estate) to prepare tax books in triplicate?

ANSWER: Two weeks!

QUESTION: How long did it take in former years?

ANSWER: Three months!

QUESTION: What made possible this saving in time?

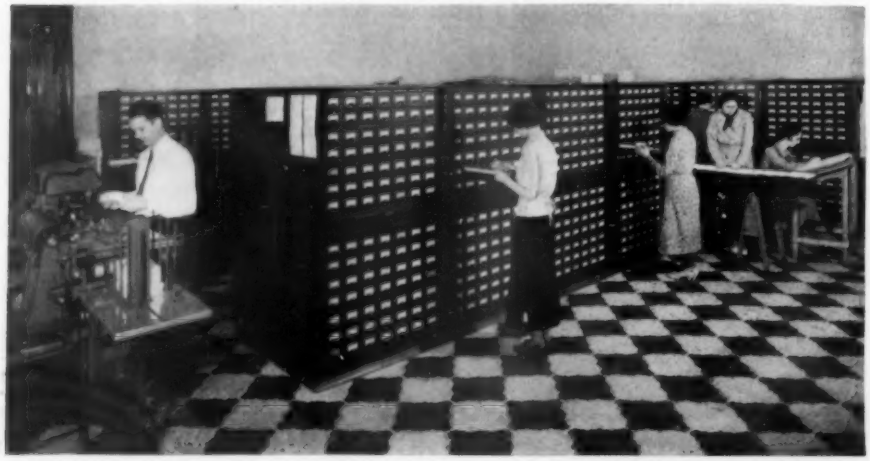
ANSWER: Completely modernized tax accounting systems.

QUESTION: How can I find out more about the up-to-date methods now being used by Cuyahoga County?

ANSWER: Mail the coupon below for a free, detailed 24-page report which was written and copyrighted by Mr. Charles B. Ryan, Deputy Auditor, Cuyahoga County, Ohio.

Recent revisions in Cuyahoga County's tax accounting procedures have resulted in many benefits. Mr. John A. Zangerle, County Auditor, says, in his introduction to Mr. Ryan's report, "It is my thought that the story of how some of our major problems were met might prove of interest and possible value to both officials and laymen who are in touch with public affairs. I therefore requested Mr. Ryan to prepare the following report for publication."

The report covers all phases of the work of the auditor's office. It tells about the old methods which were used, how these were revised and improved and describes the benefits which have resulted. It tells about how time and money are saved in the annual writing of 1,155,000 names and property descriptions, how accuracy was made certain, and how bulky, space-consuming books gave way to modern card records. You will find this experience-record both interesting and helpful.



A general view of Cuyahoga County's Addressograph unit. The cabinets contain 385,000 metal plates, one for each parcel of property in Cuyahoga County. These are arranged according to taxing districts and filed alphabetically, as to names of owners. Both the cabinets and plates are fireproof, insuring against destruction by fire and water. These metal records will copy themselves an infinite number of times, without error, on sheets, account cards or any office form. They may also be used for preparing tax bills, follow-up notices, etc. Mistakes in copying descriptions, names and addresses are eliminated. Tax books are always ready on time. Send for Mr. Ryan's report and obtain full information about these modern methods.

ALL QUESTIONS ANSWERED

Mr. Ryan's report covers such subjects as, "Assessment and Collection of Taxes," "Preparation of the Annual Tax Books," "Real Estate Tax Duplicate," "Special Assessment Tax Duplicate," "Certified Delinquent Lists," and other topics of interest. It is a report that every county official will want to read. Send the coupon below for your free copy.

SEND THIS COUPON for a FREE COPY of the COMPREHENSIVE REPORT

ADDRESSOGRAPH COMPANY
CLEVELAND, OHIO

Send me a copy of Charles B. Ryan's copyrighted report, "Modernized Tax Accounting in Cuyahoga County." No cost or obligation.

Name .....

Title .....

Address .....

courses could be compared with the previous year's deficit of $25,684.

The Park Department's finances are on a sound basis. Despite the decreased budget, the general fund showed a balance of $159,633 on January 1, 1935. Because of the financial condition of the Department, park bonds have shown a steady improvement in the market.

A. C. SALLEE,
Superintendent of Parks.

Combination Airport and City Park

COFFEYVILLE, KANSAS.—The summer of 1935 has witnessed substantial progress in the development and use of an important project inaugurated in 1931. In that summer there was presented to the city of Coffeyville for public park purposes, by George J. Pfister, a tract of 50 acres on high land just northwest of the city. For two years the city made no effort to develop this land. In 1933 the city purchased 170 acres adjoining, and at once began creating a combined airport and recreation park out of the total 220 acres.

It is by no means an over-night job to bring a finished park out of raw field, but in the past two years Mayor J. D. Byers, and the City Engineer, E. L. Brown, have accomplished wonders in the way of improvements.

In the beginning, the property was approached by four roads and it has been necessary to improve and surface all of these. In addition, an entirely new approach was planned and built. This is a beautiful scenic road winding up a steep escarpment overhanging the Verdigris River. The runways for the airport and the winding roads of the park are constructed with a substantial rock base and asphalt surface. The airport is completely equipped with boundary lights, floodlights, beacon, and a commodious hangar with every equipment and convenience and 24-hour service.

All the construction work on the park and airport, which includes the things already mentioned together with tennis courts, bridle paths, shelter house, planting of trees, flowers, and shrubbery, rock gardens, and a sunken garden with electric fountain, has been done by relief labor. All the rock used in the various construction work was quarried on the hill and the quarrying was done in such a way that the depression thus formed is now utilized for the sunken garden.

The swimming pool was built as a PWA project. It cost $40,500. The city paid $28,300 and received a cash grant of $12,200. In addition to the $28,300, the city did the excavating and furnished the rock for the building and for the aggregate for all concrete, and the equipment for the bath house.

The bath house is modern in every way. It is 33 by 100 feet. The roof of the bath house is used as a dance floor and here the municipal band gives a weekly concert. The pool is 80 by 170 feet and has a capacity of half a million gallons of water. The water is continuously circulated and is completely turned every eleven hours. The water comes from the soft water basin of the municipal water softening plant and is chemically treated as it circulates. The interior of the pool is white with blue trimmings and it is equipped with submerged floodlights which give a beautiful effect at night.

The pool is leased, the details of management being left to the lessee subject to the approval of the City Commission. On one day a week there is a special low admission price and on certain days each week children are admitted free. There is a separate wading pool for the little tots. The regular accommodations of the bath house are arranged for 650 with a possibility of handling 900. As many as 1,500 have used the pool at one time.

JAMES A. GIBSON,
Manager, Chamber of Commerce.

TOP—MUNICIPAL AIRPORT IN COFFEYVILLE.
BOTTOM—THE MUNICIPAL SWIMMING POOL

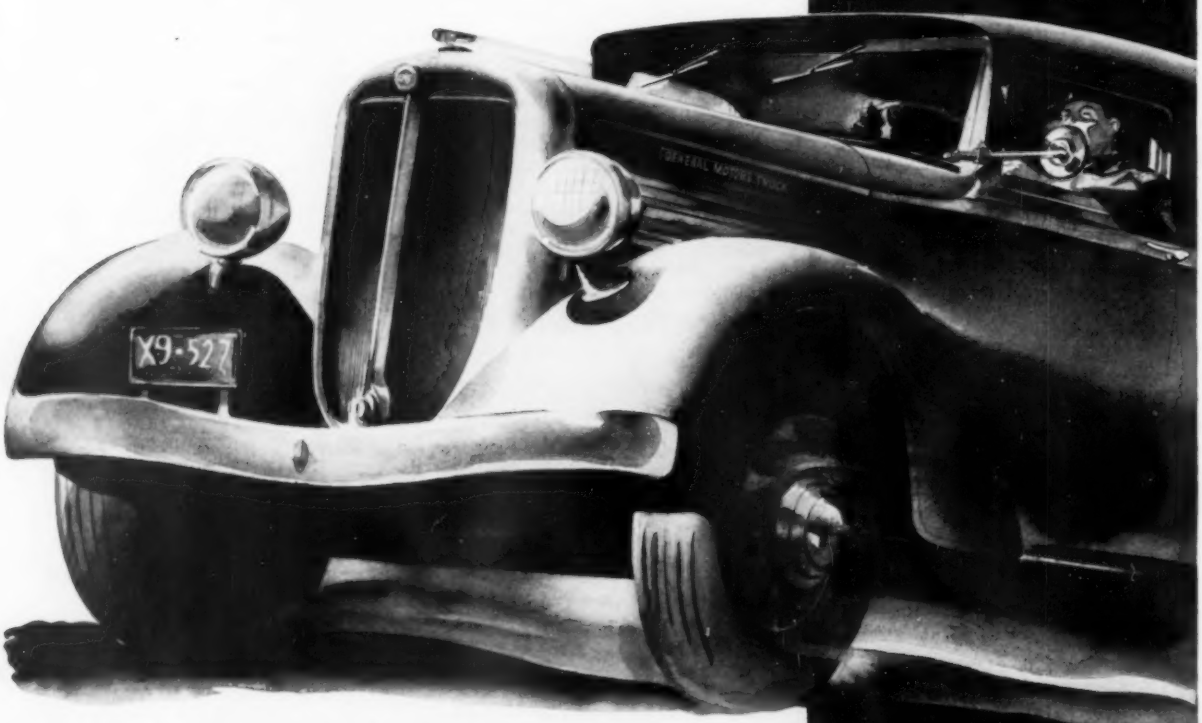
Wisconsin Counties Set Up First Inter-Municipal Power District

MADISON, WIS.—On August 21 a referendum approved by a vote of 2,998 to 654 the creation of the first municipal power district to be established in Wisconsin under the Act placed on the statute books by the State Legislature in 1931.

Under this law it was expected that municipalities interested in developing publicly owned utilities jointly would consolidate their resources and demands. The district, in fact, does not have to be contiguous, so that it is possible for two cities some distance apart to operate a power system jointly. Interested groups in Polk and Burnett Counties, in the extreme northwest portion of the state, began last year to agitate for the establishment of a power district comprising portions of the two counties. Early last June the Public Service Commission reached the conclusion that the proposed district was feasible if certain conditions were met: that outside financial aid be secured to start the district; that the original debt be kept low; that interest rates on bonds be kept below 6 per cent; and a showing of genuine saving over the general expenses of existing private organizations be indicated.

Seventeen townships and four villages voted to come into this first district. Three towns and four villages declined to enter. As a result of the fact

THE TRUCK FEATURE OF THE YEAR!



GMC Dual Performance Saves Gas, Oil, Time *and* Wear!

"One of the few major truck improvements of the past ten years," says one operator! "In our operations dual performance works out to perfection," says another! And from still another user: "Does more work with less gas".

Think of saving as much as 28% on gas. Think how much lower upkeep expenses will be because of reduced wear and tear on engine and other driving units. And in addition to these important savings, the GMC Dual Performance axle assures more effective use of power—the truck will climb a steeper grade, travel faster on the level and handle full loads easier. Too, Dual Performance gives better pick-up in traffic, which in combination with greater speed and power, reduces running time, enabling the truck to do more work per day.

Get all the facts about GMC Dual Performance—available in the 1½-2 ton and 2-3 ton ranges. Learn, too, the many other reasons why profit-minded operators are swinging to the many-feature GMC trucks of value. Whatever your hauling needs may be, there's a correctly engineered GMC truck or truck-with-trailer to fit exactly. Capacities range from 1½ to 22 tons.

Time Payments Available Through Our Own Y. M. A. C.

GENERAL MOTORS TRUCK CO., PONTIAC, MICH.

GENERAL MOTORS TRUCKS and TRAILERS

1½-22 TONS

THE TRUCK GMC OF VALUE

that not all the units concerned would agree to join the district, the Public Service Commission was required to express its approval or disapproval of the district comprising those units which did vote for its establishment.

In this first decision of its kind, the Commission declined to accept responsibility for finding that the district was definitely feasible, this not being the intent of the legislation. It adopted the attitude that the Commission need not approve the securities of the proposed district or place its affirmative finding on the ultimate financial and economic success of the venture. The Commission's only duty was to approve the district if the situation was found to be such that successful operation was feasible. This the Commission did.

Action to acquire the existing privately owned plants will now be commenced. The district concerned is composed of a farming area whose economic status ranks low among Wisconsin counties. Consequently, some doubt may be entertained as to the ultimate success of this venture in municipal ownership. On the other hand, if the district proves successful, new impulse will be given to the movement for inter-municipal cooperation in more wealthy areas.

LEE S. GREENE,
University of Wisconsin.

An Annexation Election Adds 3,000 to Longview

LONGVIEW, TEXAS.—Partial success rewarded a campaign for the annexation of suburbs surrounding this city on three sides in an election held July 23, eleven of the most populous additions voting to unite with the incorporated part of greater Longview. The population addition was estimated at 3,000.

Given 5,000 residents by the 1930 census, Longview has had rapid growth in the past five years as a result of development of the East Texas oil field, the world's largest, producing wells of which are but five miles distant. The estimated population of greater Longview is 20,000, although a census of the incorporated portion probably would show a count of not more than 14,000.

City officials were well satisfied with the result of the vote, explaining that the eleven additions voting for consolidation represented the bulk of assessable property value of the outlying areas.

LOUIS F. HART,
Editorial Department, Longview *Daily News* and *Morning Journal*.

Houston Police Tip Off Public and Crooks in Ads

HOUSTON, TEXAS.—To offset the petty racketeer who is a leech on private and local business, we use every means possible to acquaint our public with the fact that they cannot get something for nothing; and that it is always safest to deal with a reputable local concern, or with one that has a duly authorized agent who is able to show proper credentials and establish some local reference.

7-Point WARNING

(1) THIS IS A WARNING

to beware of STRANGERS posing as solicitors, salesmen or inspectors calling at your homes. THEY SHOULD NOT BE ADMITTED UNTIL THEIR CREDENTIALS HAVE BEEN CHECKED UP AND VERIFIED and that you are sure that they are local people or REPRESENTATIVES OF LOCAL BUSINESS FIRMS.

(2) IN MANY CASES . . .

and this has been very true right here in Houston the past few months, strangers without reliable credentials have been "spotters" or locators for professional criminals. According to police records, lack of caution on the part of our householders has often resulted in costly property losses and bitter experiences.

(3) DO NOT PAY CASH

IN ADVANCE TO STRANGERS on an order as oftentimes the customer has NEVER RECEIVED ANYTHING FOR THE CASH ADVANCED.

(4) DO NOT CASH CHECKS

for strangers or issue a check on an order to a stranger—many times these checks have been "altered" and later cashed by an innocent party.

(5) IT'S BETTER TO BE SAFE

than sorry. Be sure you know who the stranger is at your door before granting admission to your home.

(6) IN CASE YOU

are suspicious, phone the POLICE at once. Phone P-3181. Do not delay in this as the Police Department is anxious to co-operate with our citizens at all times.

(7) DO NOT BE AFRAID

of offending the honest sales person known to you—living here or a representative of a local business firm, as they will have their credentials with them. Protect yourself and your home.

(Signed)

B. W. Payne
Acting Director of Public Safety, Houston, Texas

There are dozens of swindlers who work the racket of having possession of some fine rugs or furs which have been smuggled in without paying the duty. The thrifty business man who knows real estate or automobiles but nothing of furs generally finds that the fox or sable which he purchased as a big surprise for the little wife gives him the biggest surprise of his life when it turns out to be a very poor grade of rabbit. And so it is with the smuggled-in rugs, or with the clothing and other articles that are sold at such big savings.

We have cooperated with the Better Business Bureau and the merchant's organizations to stop the flow of Houston dollars into trade channels which cheat the purchaser. This cooperation is shown in a series of newspaper advertisements which remind citizens that money spent with local merchants and with reliable representatives of reputable firms contributes to the upbuilding of our city, our schools and other institutions. It is not a matter of trying to dictate how people should spend their money, but of trying to render a broad service and save the taxpayers the many thousands of dollars that ordinarily go to petty frauds and schemes. A portion of one of these full-page advertisements, paid for by the recognized business organizations of the city, is herewith reproduced. Not only does this form of advertising educate the people and make them cautious, but it also warns the would-be tricksters. If a town is easy, it is soon overrun, but crooks know it is hard to do business in a town or city where the citizens have been taught to avoid rackets.

B. W. PAYNE,
Chief of Police.

Radio Series on Planning

WITH distinguished sponsorship, including the Committee on Civic Education by Radio of the National Advisory Council on Radio in Education, the American Political Science Association, the National Municipal League, the American Planning and Civic Association, and the American Society of Planning Officials, a series of broadcasts on Planning is to be given over a nationwide network of the National Broadcasting Company from October 1, 1935, to January 28, 1936, on Tuesday evenings at 7:45—8:00 P.M., Eastern Standard Time. The speakers and subjects are:

Oct. 1—Frederic A. Delano
A Plan for the Nation
Oct. 8—David P. Barrows
Limitations of Planning
Oct. 15—M. L. Wilson
The Best Use of the Land
Oct. 22—Horace M. Albright
The Economic Value of American Scenery
Oct. 29—Morris Llewellyn Cooke
Head Waters and Other Little Waters
Nov. 5—Thomas H. MacDonald
A National System of Transportation
Nov. 12—Harlean James
Who Owns Our Roads?
Nov. 19—Arthur E. Morgan
Regional Planning—The TVA an Example
Nov. 26—Harold W. Dodds
Is Local Government Doomed?
Dec. 3—George McAneny
Planning as a Municipal Function
Dec. 10—Alfred Bettman
Planning as a State Function
Dec. 17—Walter R. Rowlands
Relocating the Isolated Settler
Dec. 24—Chester H. Rowell
Making Plans Come True
Dec. 31—Flavel Shurtleff
The Law of the Roadside
Jan. 7—Robert D. Kohn
Better Housing through Better Zoning
Jan. 14—Robert Moses
Public Recreation
Jan. 21—Frank Moore
Possibilities in Tax Title Lands
Jan. 28—Gordon Whitnall
From Acres to Lots

Dr. Thomas H. Reed, Chairman of the Committee on Civic Education by Radio, will continue his weekly introductions of programs and speakers.

Reading lists for the Planning series will be prepared by Mrs. Dora A. Padgett, Librarian of the American Planning and Civic Association. Reprints of the talks will be available in pamphlet form.

Copies of the program are available for free distribution on application to Miss Doris Darmstadter, Secretary, The Committee on Civic Education by Radio, 60 East 42d Street, New York.

Payrolls . . .

FOR EVERY PHASE OF MUNICIPAL PAYROLL AND CHECK WRITING, BURROUGHS OFFERS MANY ADVANTAGES . . . . . .

Because of the large number of employees, and the diversified activities of municipal departments—such as clerical, police, fire, sanitary, and educational—municipal payroll work presents problems not encountered in business and commercial fields. For this reason Burroughs has, for years, made careful studies of municipal payroll and check writing problems. New features, machines and applications have been developed to bring greater ease and simplicity to this phase of the work.

As a result, it is now possible to combine all payroll records into one writing, providing a record of each employee's earnings, departmental payroll costs, and classified personnel statistics. A large volume of payroll checks may be handled in the limited time available at the end of the earnings period.

For complete information, call the local Burroughs office, or mail the coupon for full details about equipment and applications for any type of municipal accounting.

Burroughs

Governmental Division, Burroughs Adding Machine Company
Detroit, Michigan

Without obligation, send me complete information about the newest mechanical equipment for handling the accounting problems checked below:

Tax Accounting ☐ Budgetary Control ☐ Fund Accounting ☐ Stores Records ☐ Payroll and Check Writing ☐
Purchase and Payment Records ☐ Revenue and Expense Distribution ☐ School Board Accounting ☐
Municipal Utility Accounting ☐ Institutional Accounting ☐

Name _____ Title or Position _____

Address _____

Why not remember to mention THE AMERICAN CITY?

A Scenic Drive Along a 200-Foot Beach

LOS ANGELES, CALIF.—Looking forward to a large-scale development of what is perhaps the greatest single recreational asset of Los Angeles, its curving crescent of beach sweeping along the western seashore at Santa Monica Bay, legal machinery has been set in motion for accomplishing the first step in this direction through the construction of a magnificent shore drive. Recommended as the link of the Roosevelt Pacific Coast Highway along the ocean, it is proposed to connect the new drive with the present terminus of the highway at Colorado Street and Appian Way in Santa Monica, proceeding southward from that point along a route slightly back from the ocean front, and then swinging down to the shore itself at Crystal Pier and continuing along the edge of the beach through Ocean Park and Venice to Playa Del Rey.

In a report prepared by the Los Angeles City Engineer's office at the suggestion of the Los Angeles Playground and Recreation Department, which has jurisdiction over the city's beaches, the shore front route for the state highway was recommended, not only as the most desirable from the standpoint of a through scenic drive but also as the most useful from the point of service to the millions who enjoy the public beaches. Bills have been adopted by the Legislature which will make the ocean front highway a reality, designating the route officially as the connecting state artery with existing links of the Roosevelt Pacific Coast Highway, and providing that the unit shall be built with state or Federal funds.

The stretch of beach extending from Santa Monica through Ocean Park and Venice (in the city of Los Angeles) to Playa Del Rey possesses natural advantages and attractions for the recreation-seeking public which are surpassed by few seaside areas, but its growth and development have been seriously retarded by the lack of a north-and-south highway permitting traffic to circulate along the ocean front after it has poured into the beach area via the many large arteries leading from the center of the city. The new highway will be 110 feet in width, including a 60-foot roadway and wide walkways of 20 and 30 feet respectively on the east and west sides of the street.

Such a road will have to make use of existing beach space, but this will be more than replaced by extending the beach out to seaward through the construction of a system of groins and jetties along the shore the entire length of the highway, and filling in the spaces between the barriers by pumping in millions of cubic yards of sand from nearby upland dunes. This plan will build up a 200-foot-wide beach to protect the state highway from the sea and, of course, provide for the recreation of millions of seaside visitors, as has been done north of Santa Monica canyon, where coast highway groins have acted to build up an immense new beach area. At present the beach is of adequate width only in such other places as between the Ocean Park and Venice piers, while in a few sections, such as the stretch south of the Venice pier, the high tide line curves up to meet the line of built-up property, leaving practically no beach space for public use.

The ocean front route for the highway will provide the initial step in a comprehensive recreational development of the entire Santa Monica, Ocean Park, and Venice beach area, giving an impetus to the further recreational improvement of the beach on the one side of the roadway and to the building of high types of apartments, hotels, and other structures on the private property on the opposite side of the highway. The original cost for constructing the 4½-mile length of state highway from its present terminus in Santa Monica along the ocean to Playa Del Rey has been estimated at $4,409,000, involving the lowest expenditure for acquisition of rights-of-way of any of the various routes which have been considered, because most of the land which the shore drive would occupy is already publicly owned. This cost will not be assessed against property owners but will come out of state funds set aside for the building of state primary and secondary highways.

Because the highway will be designed to serve as a scenic ocean drive and as a medium of easy access and parking for beach-going motorists, it will not be used as a high-speed route. Fast through-traffic will be diverted from Santa Monica to points south over Lincoln Boulevard or the Main Street—Second Avenue—Dell Avenue opening which is to be built soon.

SAMUEL L. FRIEDMAN,
Department of Playground and Recreation.

Small Fast Busses Suit Detroit

THE Department of Street Railways of the city of Detroit is operating 96 Ford busses of the type shown here, 36 of which were placed in operation in July, 1934, and 60 more in February this year. They carry 21 passengers, replace rented busses, and operate on four routes: two through congested areas, one with 12-minute base headway and the other with 6-minute base headway; a third route on a wide street in an area removed from the central area, with 12-minute headway; a fourth on a congested boulevard 3½ miles from the downtown area, with 12-minute headway. "They have operated very satisfactorily," writes C. S. Richmond, Statistician of the Department, "and we are considering purchasing more of the small type fast busses. They operate much faster, maintenance is low as well as gasoline and oil consumption."

Massachusetts State Planning Board Appointed

Under the recent Act of the Commonwealth of Massachusetts creating a State Planning Board, the following have been appointed to membership:

Chairman—Miss Elisabeth M. Herlihy, Secretary, Boston Planning Board
Henry I. Harriman, Chairman, Board of Trustees of the Boston Elevated Railway
Karl T. Compton, President, Massachusetts Institute of Technology
Frederic H. Fay, Chairman, Boston Plannng Board
William Trufant Foster, of the Pollack Foundation
Clarence J. Bilodeau, of Pittsfield

Making cars safe

goes a long way toward making *traffic safe!*

THE same scientifically accurate brake and steering tests, on the same make of machines used by the automobile manufacturers themselves in their own final inspections of new cars, give you a traffic safeguard which no one can argue away.

That's what the sensational new Bendix Civic Safety Clinic equipment provides. *Real* tests, that can be repeated time after time with the same answer (try this on any other type of equipment!). Quick tests—five cars at once—a car off the line every minute! Thorough tests—checking headlights, steering "geometry," horn and windshield wiper as well as exact efficiency of each brake, and the equalization of all four brakes.

Moderate investment. Sturdy, long-lived construction. Unmatched financial responsibility. Nation-wide service. And a complete, demonstrated Plan of Operation, which makes any Civic Safety Clinic self-supporting and self-liquidating. Write or wire for details.

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(Subsidiary of Bendix Aviation Corporation)
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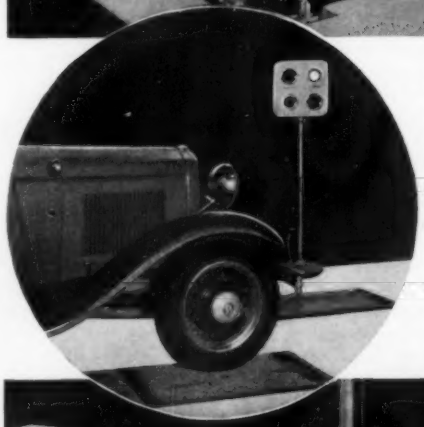
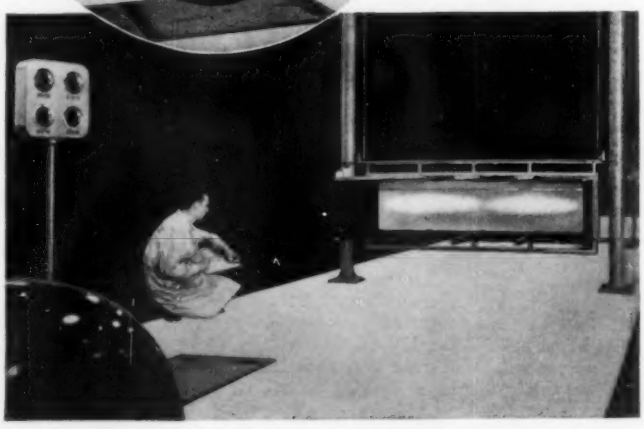


Above: Tests each brake separately—by full wheel revolution under electric power . . . shows total stopping ability . . . shows up "out-of-round" drums. . . . TESTS TRACTOR AND TRAILER TRAINS.

Left: Tests wheel alignment, caster, camber, toe-in, entire steering geometry, precisely, quickly, easily.

Below: Tests headlights for focus, level, intensity . . . on a screen . . . in daylight!



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Send me at once full details about Civic Safety Clinic Equipment, prices, operating plan, etc.

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TRAFFIC CONTROL AND FACILITATION

Conducted by Publications Committee, Institute of Traffic Engineers, 175 Fifth Ave., New York

Paul L. Green, Chairman; Melvin J. Bankhead, James R. Guthrie, T. T. McCrosky, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, Miss I. K. Rolph, Peter J. Stupka, J. C. Vincent, John C. Wrighton

Accidents Can Be Reduced

By PAUL L. GREEN
Chairman, Publications Committee, I.T.E.

The Institute of Traffic Engineers Asked "How?" and Ten Recognized Experts Answered as Follows

The Question on the Urban Problem

What are the most important measures which you would recommend be taken to reduce traffic accidents, were such a request made to you from your Mayor, Council, Chamber of Commerce, leading newspaper editor, or other prominent civic body or official?

Answered by

1. Reyburn Hoffman, Secretary-Manager, St. Louis Safety Council, St. Louis, Mo.
2. E. B. Lefferts, Manager, Public Safety Department, Automobile Club of Southern California, Los Angeles, Calif.
3. Burton W. Marsh, Director, Safety and Traffic Engineering Department, American Automobile Association, Washington, D. C.
4. Miller McClintock, Director, Albert Russell Erskine Bureau for Street Traffic Research, Harvard University, Cambridge, Mass.
5. Lewis W. McIntyre, Executive Vice-President, Pittsburgh Motor Club, Pittsburgh, Pa.
6. William A. Van Duzer, Director of Vehicles and Traffic, Washington, D. C.
7. Arnold H. Vey, Traffic Engineer, Motor Vehicle Department, Trenton, N. J.
8. Dr. Albert W. Whitney, Associate General Manager, National Bureau of Casualty and Surety Underwriters, New York City.
9. Sidney J. Williams, Director Public Safety Division, National Safety Council, Chicago, Ill.
10. O. W. Wilson, Chief of Police, Wichita, Kans.

Answers to the Urban Problem

RECOMMENDATIONS

		No. Times Mentioned
1.	Rigid, intelligent and sustained enforcement by police and courts	10
2.	Operation of a Traffic Engineering Bureau in the larger communities and the employment of periodic expert advice and surveys in the smaller ones	8
3.	Continuous organized educational efforts directed at driver, pedestrian and general public	7
4.	Facilities for obtaining, recording and using complete accident statistics	5
5.	Uniformity of ordinances, with particular reference to the Model Traffic Ordinance of the National Conference on Street and Highway Safety	5
6.	Proper and effective use of signs, signals and markings	3
7.	Coordination of effort by administrative, judicial, technical and educational agencies	3
8.	Compulsory and periodic inspection of motor vehicles	3
9.	Control of the accident-prone driver	3
10.	Speed control	2
11.	Improved street lighting	2
12.	Control of the pedestrian	2
13.	Schoolboy patrol	2
14.	Educate the commercial driver	2
15.	Control the intoxicated driver	1
16.	Tighten up the drivers' license examination	1
17.	Regulate parking	1

IN a foreword to a pamphlet, "Good Driving," issued by the Educational Division of the National Safety Council, Dr. Albert W. Whitney, Associate General Manager of the National Bureau of Casualty and Surety Underwriters, says: "A fifty and possibly a seventy-five per cent reduction in our traffic accidents can be had at the same time with an actual increase in the speed and efficiency of moving traffic. The methods for controlling this situation have been fully developed. What is needed at the present time is not more expert knowledge but the will to make use of what we already have."

This bold statement is at once a severe indictment of present traffic practices and a challenge to better the existing situation. Out of the welter of talk surrounding our national traffic problem, let us see what remedies are proposed by a group of men who indisputably know their business.

While there was complete unanimity of opinion upon only one factor, yet the replies received grouped themselves readily in the broad headings listed herewith, with the emphasis upon various aspects of enforcement, engineering and education. In some cases recommendations which could have been included in a more general grouping were singled out because of the special emphasis placed upon them by the contributor—evidently they lay close to the heart of the writer.

1. Enforcement

MR. WILLIAMS: ". . . . we must have honest, impartial law enforcement by the police and courts. You gentlemen and all the organizations you represent must stand squarely behind our police and our judges and let the chips fall where they may. To relieve the burden on the traffic court, we must set up a traffic violations bureau for the quick and informal handling of minor cases."

MR. MARSH: "'Tighten up' on enforcement, starting with the driving violations which are most involved in serious accidents, and fight to eliminate 'fixing.' Organize an effective police traffic divi-

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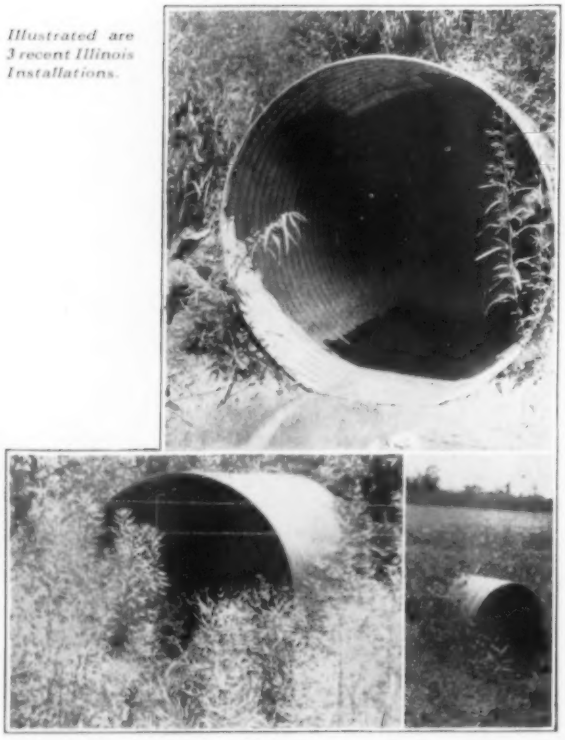
Illustrated are 3 recent Illinois Installations.



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Cost, ease and speed of installation, adaptability, strength, long life and ability to withstand corrosion, the destructive action of shifting and settling fills, alternate freezing and thawing, the ceaseless pounding of heavy traffic—all are vital, determining factors that influence your judgment on type and material.

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Capital City Culvert Co. ..... Madison, Wis.
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sion under the direction of an official who is responsible only to the chief. Start a traffic officers' training school. Inaugurate a trained accident investigation squad. Set up a separate traffic court, or in smaller communities have all traffic cases considered always by the same competent and interested judge. Set up a traffic violations bureau (as recommended in the Model Traffic Ordinances of the National Conference on Street and Highway Safety) so that the traffic court will have ample time for consideration of the most important and serious cases."

MR. VAN DUZER: "The number of new cars and new drivers is increasing so rapidly in all large cities throughout the country as to call for substantial increase in the police force to handle the enforcement problem. Regulations regarding speed, reckless driving, driving while intoxicated, leaving after colliding, right-of-way, STOP signs, parking, failing to give signal, illegally passing other vehicles, should be vigorously enforced without fear and without favor. No progress can be expected in improving the enforcement situation in communities where political judges, in order to make votes or friends for themselves, play favorites, suspend sentences, take personal bonds or allow cases to be repeatedly postponed."

CHIEF WILSON: "The complete elimination of ticket fixing and the strict and impartial enforcement of a drivers' license law. This to make the *penalty to the offender* as certain as possible."

DR. MCCLINTOCK: "An enforcement index of ten."

2. Engineering

MR. MARSH: "Most American cities are *very sick* so far as their traffic accident situation is concerned. Because the situation has been gradually growing worse they have not realized how sick they are. They need the advice of competent specialists, and that advice should be based upon thorough study and analysis of their particular conditions and problems. The scientific approach to traffic problems is the only one which can consistently be expected to produce results. Differences in point of view among interested groups are generally removed by impartial analysis of facts. A unique opportunity now exists for securing relief workers to assist communities in making such traffic studies at very low cost—but the community should select and pay for a qualified survey director and technical advisor out of its own funds."

MR. MCINTYRE: ". . . . to secure some one who knows about the successful traffic accident reduction methods means the employment of a traffic engineer either in a full-time or a consulting capacity; or, at the very minimum, some one of the engineering staff must make a study of the methods which have been developed and be given sufficient time and authority to bring about their application. Success in traffic accident reduction demands the recognition of the technical character of this function."

MR. HOFFMAN: "Enforcement embraces the activities of the police department and the functioning of the courts which handle traffic cases. The best example of this is to be found in the July experience in St. Louis, with but six motor-vehicle deaths, half of the monthly average. This low total reflects the intensive campaign of the police against all flagrant violations, and the deterring effect of strict justice in the form of workhouse sentences and consistent fines, and the apparent abolition of fixing, especially of the serious cases."

MR. LEFFERTS: "A more general use of the powers of suspension and revocation of licenses to be used in removing from the highways those careless drivers who may not have been recognized in the original examination."

MR. VEY: "Depending on the size of the community, either a permanent traffic engineer should be employed or the regular city engineer should be assigned to do traffic engineering work. An effort should also be made to coordinate the activities of the various departments interested in streets and highways and highway safety."

3. Education

DR. WHITNEY: "The following have already been shown to produce results: (1) the safety education work that has been going on for some years in the more progressive elementary schools, which has produced striking results; (2) the acceptance by high schools of the responsibility for teaching young people how to use the automobile. . . . . when the public is fully aroused to the practical possibility of effective traffic control, a comprehensive plan can be inaugurated."

MR. VEY: "An educational program should be designed obtaining the cooperation of radio broadcasting stations, civic organizations, and clubs. Through newspapers, magazines, over the radio, on the platform, by means of posters and billboards, safety messages should be frequently broadcast throughout the community. The schools should also be interested and include in the school curriculum a safety course. To establish a program of safety educational activities, a citizens' committee should be organized. The purpose of such a committee is not to conflict with the activities of the officials of the community, but to enlist the cooperation of all interested groups and agencies of the community as well as to mold public opinion in the proper direction."

DR. MCCLINTOCK: "High-school courses in safe driving."

MR. WILLIAMS: "We must constantly educate the general public to think and act safely—through safety meetings of our civic organizations; safety programs on all radio stations; fleet posters, billboards, newspaper and magazine publicity."

CHIEF WILSON: "The creation of an Accident Prevention Bureau, which would have as its chief function the task of educating the public. This should be done by the constant use of news stories, feature stories, columns and boxes in all the local papers; by regular radio broadcasts; and by an efficient Speakers Bureau. The regular publication of mimeograph or printed material for distribution is also recommended. This bureau would be charged with the establishment of safe driving or traffic courses in the high schools of the city, and in the establishment of schools for traffic offenders and for the general public. The use of a mobile public address unit is recommended because of its efficiency in making admonitions. This to make the *drivers* as safe as possible."

4. Accident Records

MR. WILLIAMS: "First, we must know all about our accidents—how many, when, where, how, and to whom. This means requiring a report of every accident causing death, personal injury or serious property damage, on standard forms, tabulated and analyzed, the resulting information given to the press and the people, as well as to the city departments, and the reports finally filed by location for future studies."

MR. MCINTYRE: "To secure satisfactory traffic accident reduction, a measuring stick must be established. The measuring stick is the accident record, yet far too few of our political subdivisions keep any record of accidents at all, not even fatalities. Machinery must be set up whereby practically every accident which occurs becomes a matter of record. This can be accomplished through an efficient accident-reporting system on the part of the police department, through a requirement that all motorists report accidents in which they are involved, and through the establishment of the necessary clerical force to keep the records in proper form."

MR. VEY: "From the spot map select high accident locations, and by coordination of collision diagrams with conditions, determine whether physical changes, elimination of obstructions, or changes in traffic control methods, will correct the hazard."

5. Uniform Ordinances

MR. LEFFERTS: "Adopt reasonable regulations such as found in the National Uniform Vehicle Code and Model Municipal Traffic Ordinance."

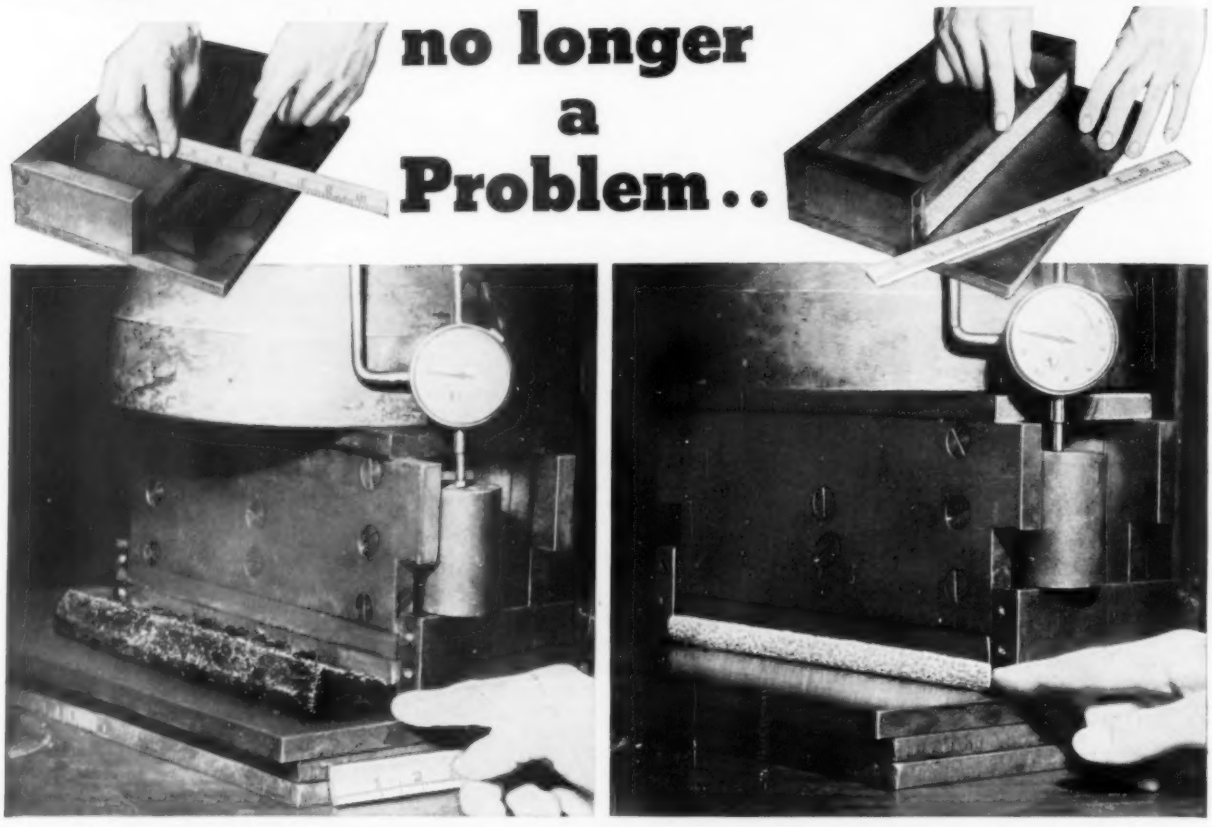
MR. VEY: "A review should be made of existing traffic ordinances of the city, including parking regulations, to the end that such ordinances and regulations be made reasonable and proper to improve traffic conditions of the city. All such ordinances and regulations should meet the uniform standard."

MR. HOFFMAN: "The city ordinances should be revised to include the standards of the Uniform Vehicle Code as set out in the Model Municipal Traffic Ordinance."

DR. WHITNEY: ". . . . there are only nine states that have satisfactory drivers' license laws. . . ."

MR. WILLIAMS: "We must check our traffic ordinances with the national model and remedy any discrepancies, so that

Expansion Joint Extrusion no longer a Problem..



(Left) Note the 2" Extrusion. Asphalt Expansion Joint, 1" x 4" x 10", compressed to one-half original thickness while restrained on three edges, extruded 2" from the 4" dimension, showing practically no compressibility within itself. And there is no recovery of the extruded material. (Right) Note the absence of extrusion. J-M Cork Expansion Joint, 1" x 4" x 10", compressed to one-half original thickness while restrained on three edges, shows no extrusion.

J-M Cork Expansion Joints cannot be displaced from joint space

THE Problem . . . Heat and moisture expand concrete pavements. Asphalt expansion joints, not compressible within themselves, extrude. The extruded material is spread over the surface of the road by traffic, never returns to the joint space.

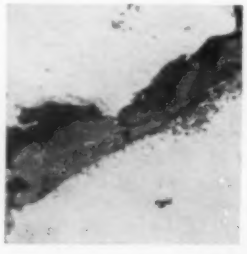
With colder weather, the pavement contracts. The joint spaces open up. Collect dirt, water, frost. Constant maintenance is necessary to preserve the effectiveness of the joints.

The Problem Solved . . . J-M Cork Expansion Joint solves this problem once and for all. Properly spaced, it simply *cannot* be displaced from the joint.

Easily compressed, J-M Cork Expansion Joint permits free expansion of the concrete. Remarkably resilient, it has an exceptional recovery after extended periods of compression.

J-M Cork Expansion Joint is now providing enduring protection of concrete highways, sidewalks, bridges and other structures under all sorts of climatic conditions. Summer and winter, year in and year out, it fills the joint space at all times, providing constant effectiveness without maintenance.

For complete details and specifications on J-M Cork Expansion Joints, for further data in regard to the above mentioned tests, mail the coupon.



ON THE ROAD

Ordinary asphalt expansion joint at left; J-M Cork Expansion Joint at right. Installed in adjacent joints in October; photographed the following July. The Cork Expansion Joint was not displaced under the pressure of expansion; it recovered thickness as the pavement contracted.

Johns-Manville
Cork Expansion Joint JM

JOHNS-MANVILLE, 22 East 40th Street, New York City
Send me engineering data sheets on J-M Cork Expansion Joint.

Name_____ Title_____

Organization_____

Address_____

City_____ State_____

AC-10A-35

our regulations will be up to date, reasonable, and uniform with other cities."

6. Signs, Signals and Markings

CHIEF WILSON: ". . . . include a complete modernization of all signs and signals."

DR. MCCLINTOCK: "New mechanical control."

MR. VEY: ". . . . determine that all regulatory devices are operated and used properly, and meet uniform standards. Traffic control devices if used unnecessarily or improperly not only do not prevent accidents but bring about a disrespect for the devices and result in waste."

MR. HOFFMAN: "It is necessary to develop a plan of major streets to accommodate heavy traffic volumes, and then to concentrate signals, safety zones, islands and other regulatory measures and devices upon this system."

7. Coordination of Effort

MR. MARSH: "Organize a Traffic Commission or Traffic Advisory Council and see that *it works effectively*. The commission should be made up of municipal officials and representatives of civic and business groups who have a vital interest in a real traffic improvement program. It is of vital importance that the attack be a cooperative one in which all organizations having active interest be represented. Different groups have widely varying interests on certain traffic problems. For proper and continuing progress, these differences must be harmonized into sincere cooperation on a sound program. Furthermore, there is great need for a group of working leaders in a community who will become well acquainted with the intricacies of traffic and accident problems, and who will develop an interest in a sound improvement program and a will to see that it is made effective."

MR. WILLIAMS: "To coordinate the traffic work of the Traffic Engineer, the police department, other city departments, and civic organizations, we must set up a Traffic Commission as provided for in the Model Traffic Ordinance."

MR. MCINTYRE: "Last but not least in the possibilities of bringing about coordination is traffic education. Such education is most important in coordinating the official activity with the attitude and action of motorists and pedestrians. These citizens must be brought to realize the constructive nature of the official activities. They must understand something of the methods being used and the results achieved. In the last analysis it is traffic conduct of the individual citizen which makes traffic accidents."

8. Compulsory and Periodic Motor-Vehicle Inspection

MR. HOFFMAN: "There should be compulsory motor-vehicle inspection, probably twice a year, conducted by the city."

MR. WILLIAMS: "I also suggest that we set up a municipal inspection station for the periodic testing of all motor vehicles in the city, to be operated by the police department."

CHIEF WILSON: "Compulsory motor-vehicle inspection; this to make the *vehicle* as safe as possible."

9. Control of Accident-Prone Drivers

MR. VAN DUZER: "Careful studies should be made of all accidents and the records of all drivers in order to eliminate by suspension or revocation those who by their own negligent, careless or reckless acts are causing accidents."

MR. LEFFERTS: "Develop an Accident Investigation Squad in order that adequate penalties may be imposed upon those who have by their careless or reckless acts been responsible for a traffic accident, which should be a means of developing a realization upon the part of users of the highway that the intent of the authorities is to make the use of the highways safe."

DR. MCCLINTOCK: "Tight examinations for repeater motorists."

10. Control of Speed

MR. VAN DUZER: "Speed is the basic cause of all serious traffic accidents. A study of accident records and speed counts in the locations where the accidents occur will indicate where enforcement should be vigorously applied. The time has not yet come, in my judgment, when any city should abandon speed regulations. There is no doubt in my mind that the increase in accidents during the past two or three years has been due partially to the advertised increased speeds of the new models. Unless the manufacturers themselves abandon these forms of advertising I should be in favor of legislation to prohibit it."

CHIEF WILSON: "When *all of this* has been done, it will be found that the injury accident rate is still running away with itself. Then it will be recognized that quick transportation is a modern necessity, for which we must pay in human life and suffering in proportion to the use we make of it. When everything else has been done to make the highways safe, we find ourselves still faced with a Frankenstein monster. It is not generally recognized, however, that this monster is amenable to complete control; that the fare exacted for the ride is in geometric proportion to the speed; that the police could pull the fangs of the beast if the public would permit the operation. When the nature and necessity of the operation are clearly understood, a demand will be made that speed regulations be rigidly enforced; and as the higher speed brackets are brought down, the average driving hazard will be decreased and the terrific toll in human life will be lessened."

11. Better Street Lighting

MR. VEY: "A survey of traffic-accident experience will indicate the hazard of night driving. If night accident experience is determined to be proportionately large, a survey of street-lighting facilities should be made. If found to be inadequate or obsolete, recommendations should be offered to improve street-lighting facilities."

MR. HOFFMAN: ". . . . include a study of street illumination, which in these times of reduced budgets has been curtailed in the interest of economy, which has proved false in most cases."

12. Pedestrian Control

MR. HOFFMAN: "There should be a pedestrian control ordinance, supplemented of course by an adequate signal system, which would include pedestrian control signals."

CHIEF WILSON: "Effectively enforced pedestrian control; this to make the *pedestrian* as safe as possible."

13. Schoolboy Patrol

CHIEF WILSON: "Junior Traffic or Schoolboy Patrols; this to make the *school children* as safe as possible."

MR. WILLIAMS: "We must see that our grade schools are carrying on a good modern safety program both in the classrooms and through their schoolboy patrols, including the furnishing of regular safety material to the teachers. No less important is an equally aggressive safety program in our high schools, including the setting-up of regular classes in which every young man and young woman in these schools will be taught how to drive, as soon as he or she reaches the legal age."

14. Commercial Driver

MR. WILLIAMS: "We must encourage our commercial vehicle fleets—the trucks, taxicabs, busses and the like—to make both their vehicles and their drivers models for the rest of the community. The best way to handle this is by setting-up a committee or group of men representing these fleets to carry on an inter-fleet safety contest and arrange for occasional safety meetings for all the drivers."

DR. WHITNEY: "It has been shown that results are obtained through work done with fleets of trucks and busses where executives have interested themselves in the situation."

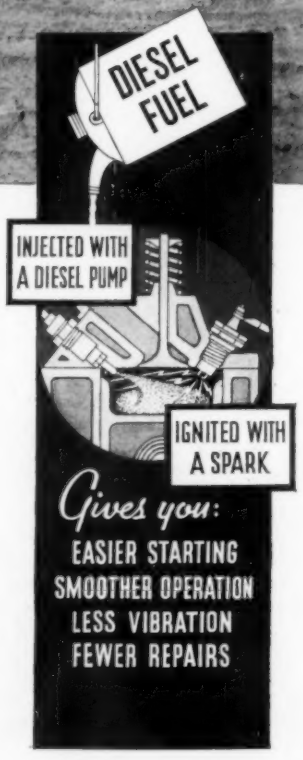
15. The Intoxicated Driver

MR. VAN DUZER: "Scientific data are needed in order to bring about adequate enforcement of the laws against driving under the influence of liquor. Accurate information is needed which will convince judges and juries as to the effect of intoxicants on drivers, and which will assist in the practical problem of enforcement."

16. Tighten Examinations

MR. LEFFERTS: "More thorough examination which would result in more careful selection of those to whom drivers' licenses are issued, in order that potentially dangerous drivers may not be permitted to operate."

Proof of LOWEST FINAL COST



MODEL "L-O"—12.6c AN HOUR. The 79 H.P. "L-O" pulls a 14-foot blade grader on 2.8 gallons of Diesel fuel per hour. (From a typical county commissioner's report.)

"K-O" SAVED 85% ON FUEL. Two Model "K-O" Oil Tractors on another job worked at a fuel cost of 90 cents each per day, compared to $12.00 for two 60 H.P. tractors on the same job.

25% MORE YARDAGE—10% LESS FUEL. Pulling a 12-yard scraper, an "L-O" moved 100 yards of dirt per hour on 4½ gallons of Diesel fuel. Nearby, a Diesel tractor moved 80 yards on 5 gallons per hour . . . on a shorter haul.

* * *

In fuel costs . . . and all other costs . . . Allis-Chalmers Oil Tractors are setting new lows. Not just low fuel cost PER HOUR . . . but low fuel cost PER UNIT OF WORK DONE. These results offer positive proof that the "low compression" principle reduces tractor costs.

Track-Type and Wheel-Type Tractors . . . Power-Controlled Graders . . . Hand-Controlled Graders . . . Speed Patrol Graders . . . Elevating Graders . . . Power Units . . . Track Wagons . . . Wagon Tracks

ALLIS-CHALMERS

TRACTOR DIVISION—MILWAUKEE, U. S. A.

MR. VAN DUZER: 'Many persons consider parking a minor regulation and do not think that policemen should waste their time enforcing such regulations. When parking interferes with the free movement of traffic, it then becomes one of our major traffic problems. A careful survey of all the facts will show that a large percentage of intersection collisions are due to poor vision at the intersections, and this poor vision is caused by cars parked too near the intersections. A study of safe approach speeds at each intersection will indicate how far cars should be parked back of the intersection. In most cases this should be from 45 to 50 feet instead of from 20 to 25 feet as at present."

An Inescapable Responsibility

"No new suggestions," some may say. We quote Dr. Whitney to the effect that the means to solution are known and developed. Our symposium is designed to develop the relative weighted importance of these known control measures, based upon the cumulative experience of their sponsors. We had better face the fact that there exists no magic which can be harnessed to reduce the terrific yearly toll of death and accident. There do exist reduction measures of proved effectiveness when sincerely, intelligently and continuously applied without fear or favor. The chief ingredient of the life-saving formula is hard work and sustained effort upon the blazed path.

The simple fact is that those charged with the safety of life and property in our American communities have at their hand the means of preventing death, injury and damage to property of countless thousands of their fellow citizens. They cannot escape the responsibility.

EDITORIAL NOTE.—A report on a similar symposium conducted by the Institute of Traffic Engineers among ten experts in the problem of rural traffic control will appear in an early issue of THE AMERICAN CITY.

Harvard Fellowship Awarded

During the past summer, the Graduate School of City Planning of Harvard University and the Harvard Traffic Bureau conducted a competition for a Fellowship given by the Automobile Manufacturers Association for an approved program of intensive work upon joint problems of city planning and traffic control engineering under the direction of the School during the academic year, 1935-1936.

The award of the Fellowship, which carries a stipend of $1,200, was made on the basis of a paper on the subject specified, "The Respective Fields and Interrelations of City Planning and Traffic Control Engineering in the Solution of the Vehicular Traffic Problem," and on records of scholastic achievements and extra-curricular activities. The successful competitor was Thomas J. Bardzil, B. Arch., Carnegie Institute of Technology 1934, M. Arch., ibid. 1935.

New York Fights Needless Noises

THE efforts of New York's new League for Less Noise to minimize the unnecessary noises of the city are meeting with a surprising amount of interest from the public. This organization, incorporated on July 2, has succeeded in less than three months in making New York City residents "noise conscious."

The objects of the new League, as stated in its printed matter, are (a) to develop public opinion through the aid of committees, clubs, civic bodies, the issuance of public statements and publication of a society periodical; and (b) to aid in the formation, passage and enforcement of laws and ordinances in this city and in other communities throughout the United States having for their purpose the elimination or lessening of noise.

Unnecessary honking of automobile horns, radio loud speakers, elevated trains, subway trains, street cars, motor trucks, prolonged factory whistles, and the rattle of milk bottles by milkmen are among the undesirable noises which are inflicted on the city worker. In its attempt to carry forward its program for noise control, the League plans to put into the field engineers, doctors, technicians, governmental, political and accoustical experts; and lawyers to provide assistance in possible court proceedings and to formulate new legislation if required.

During September an intensive educational campaign has been carried on, with a formal drive against unnecessary noise scheduled to start on October 1.

Scientists are agreed that the effect of noise on the physical and mental processes of the body is harmful. The latest of a series of studies made by Britain's Medical Research Council showed that even though many people become accustomed to a certain amount of clatter, its injurious effect continues; and confirmed the conclusion that noise hinders successful human effort and that quiet assists it.

The problem of noise is a complex one. While it is recognized, of course, that in a city of the size of New York noise cannot be completely abolished, it is hoped that with the full support of the public most of the unnecessary noises which mar the peace and well-being of its citizens may be eliminated.

Courtesy of the New York Times

NOISE MAP OF NEW YORK CITY

The Municipal Bond Market

Recent sales of new issues from the September numbers of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$1,980,000	Pennsylvania, Highway	4	3	1.83
292,000	Delaware, Improvement	2.12	6.16-11.25 Op.-Avg.	2.116
3,500,000	Massachusetts, Metropolitan Water	2.5	15.25 Avg.	2.41
434,000	St. Paul, Minn., Sewage Disposal System	2.70	18.5 Avg.	2.67
137,900	Vigo Co., Ind., Advancement Fund	3	7.5 Avg.	2.97
138,000	Potsdam, N. Y., Village Building	3.10	11.5 Avg.	3.09
166,000	Lyons Tp., Ill., School, Funding	3.5	13.5 Avg.	3.41
160,000	Yellow Stone Co., Mont., School	4	11 Avg.	3.53
230,000	Harrison, N. J., Funding	3.75	11 Avg.	3.64
109,000	Harrington, Del., Sanitary Sewer	4	16.5 Avg.	3.74
266,000	Birmingham, Ala., Capital Imp., Refunding	3.5	7.5 Avg.	3.78
2,000,000	Delaware River Joint Commission, Philadelphia-Camden Bridge	4 25	25.5 Avg.	3.81
131,000	Greenwood, S. C., Water-Works Revenue	4	8.16	3.89
175,000	Pottawatomie Co., Okla., Court-House	4	11.33 Avg.	3.92
152,136	Akron, Ohio, Refunding	4.25	5.25-7.25 Op.-Avg.	4 22
373,000	Washington Co., Miss., Road Dist.	4	10.5 Avg.	4.29

All purpose DEPENDABILITY

WITH 1935 HARLEY-DAVIDSONS

MORE and more enforcement departments are relying on Harley-Davidson motorcycles for all-around dependability. They provide speed, fast get-away, flexibility, ease of handling and parking, and great rider comfort. Modern windshields and legshields give ample protection in all kinds of weather. Harley-Davidson sidecars provide the added advantage of whizzing an extra officer to scenes of trouble—picking up violators — rushing injured persons to the hospital where an ambulance is not available.

Radio-equipped Harley-Davidson motorcycles meet every need of central control with fast assembly wherever necessary. . . . Traffic control — whether in congested metropolitan areas or open country — is made most complete and effective by Harley-Davidson motorcycle squads. Parking supervision is made easier and faster. All these features—plus the genuine economy of motorcycle operation and maintenance — are ample proof of All-purpose Dependability.

See your nearby Harley-Davidson dealer or write for special Police literature.

HARLEY-DAVIDSON MOTOR COMPANY
Dept. M, MILWAUKEE, WIS.

HARLEY-DAVIDSON

The Police Motorcycle

Water Rates and Service Charges, Installation Charges, Hydrant Rentals and Sprinkler Costs—XVIII

Abstracts of Water Department and Company Reports

Ansonia, Conn.

Population	19,000
" served	18,000
Number of services	2,579
" " meters	2,579
" " hydrants	225
Miles of water main	37.5

The schedule of rates for metered services, on which bills are rendered quarterly, is as follows:

		Per 100 Cu. Ft.
First	2,000 cu. ft. per quarter through each meter	$ .20
Next	23,000 " " " " " "	.15
"	75,000 " " " " " "	.13
"	150,000 " " " " " "	.12
"	750,000 " " " " " "	.11
Over	1,000,000 " " " " " "	.06

The fixed service charges, which cover the setting and disconnecting of the meter but do not pay for any water, are as follows:

⅝" meter	$ 1.50
¾" "	2.25
1" "	5.40
1½" "	13.50
2" "	18.00
3" "	43.50
4" "	63.00
6" "	118.50
8" "	190.50
10" "	216.00

THEODORE L. BRISTOL,
President and Treasurer, Ansonia Water Co.

Brockton, Mass.

Population	62,500
" served	80,000
Number of services	11,933
" " meters	12,300
" " hydrants	1,400
Miles of water main	150.0

The rates for water measured by meter in Brockton are as follows:

First 18,000 cu. ft. per quarter or any part thereof, the domestic rates of 19c per 100 cu. ft.
In excess of 18,000 cu. ft. and under 27,000 cu. ft. per quarter, the intermediate rate of 15c per 100 cu. ft.
In excess of 27,000 cu. ft. per quarter, the manufacturing rate of 10c per 100 cu. ft.

Meters are supplied by the Water Commissioners and set at the expense of the city. For each service supplied there is a charge for service and meter per quarter known as meter rent, as follows:

⅝"	$ .55
¾"	.70
1"	.80
1¼"	.90
1½"	1.40
2"	1.75
3"	3.50
4"	5.00
6"	12.50

All needed repairs, except for damage by frost or heat, are made at the expense of the city.

All applications for the introduction of water to any premises or for the extension of any pipe for the conveyance of water are made by the applicant on a form provided for that purpose. No person is permitted to make any connection with the pipes of the water works, or to make any repairs, additions to or alterations of any tap, pipe, cock or other fixtures, except a licensed plumber. All service pipes and stop cocks are supplied by and installed by the city and are laid from the street main through the cellar wall. The line from the street together with the cost of a suitable stop and waste inside the building is paid by the water taker. Any one desiring a second service pipe from the main to his premises must pay the whole cost, including the stop-cock and box. Consumers are required to keep all fixtures in good repair and protected from frost at their own expense. When two or more parties take water through one service pipe, the provisions in regard to shutting off the supply are applicable to all parties although one or more of them may be innocent of any cause of offense.

The city is divided into three meter districts and bills are rendered quarterly. All bills remaining unpaid for 15 days after they become due are considered as justification for turning off the water without notice. When water has been turned off for non-payment of bills, it is not turned on again until the party has paid all water rates due, together with $1.00 charge for turning the water on. Private hydrants, fire pumps, and sprinkler systems using city water may be tested only in the presence of a representative of the Water Department after a permit has been secured for such test. There is no charge for public fire hydrants and no charge for private fire hydrants except the installation charge.

DANIEL M. RYAN,
Assistant, Superintendent,
Brockton Water Works.

Somerville, Mass.

Population	107,000
" served	107,000
Number of services	13,833
" " meters	13,833
" " hydrants	1,401
Miles of water main	11.7

The new water rates in Somerville, which became effective February 1, 1935, are:

Any part of the first 300,000 cu. ft. of water used in a month, 16c for each 100 cu. ft.
Any part of the second 300,000 cu. ft. of water used in the same month, 12c for each 100 cu. ft.
Any quantity over 600,000 cu. ft. of water used in the same month, 10c for each 100 cu. ft.

A minimum charge of $1.50 is made for any quantity of water under 1,000 cu. ft. used in one quarter. Bills are rendered monthly to industrial consumers, and quarterly to residential consumers. Bills are rendered on the first of the month and are payable within 10 days. Unpaid water bills are a lien on real estate, and collections may be made by the city through the sale of property, in accordance with Chapter 391 Acts of 1923 of the Massachusetts Legislature.

Applications for new services must be made in writing and a deposit made covering the cost of the installation to the property line.

There is no rental for fire hydrants or sprinkler systems, since the water works are owned by the city. Installations of private fire hydrants and sprinkler systems for fire protection are made at the cost of the consumer by the Water Department.

JOSEPH P. PHILLIPS,
Water Commissioner.

Altoona, Pa.

Population	90,000
" served	93,000
Number of services	20,000
" " meters	20,000
" " hydrants	3,885
Miles of water main	196.0

The water rates for services in Altoona are:

First	2,000 cu. ft. or less as a minimum	$ 3.75
Next	5,000 " " at	15c per 100 cu. ft.
"	50,000 " " "	10c " " " "
"	500,000 " " "	5c " " " "

All in excess of 557,000 cu. ft. semi-annually is charged for at 4c per 100 cu. ft.

Water furnished to consumers outside the corporate limits of the city of Altoona is charged for the same as to consumers inside the corporate limits of the city.

H. S. ALE,
Superintendent, Bureau of Water.

BE A GOOD NEIGHBOR

It's the Best American Tradition

THERE was a time, not so long ago, when being a good neighbor was a real factor in getting America going—and keeping us on our way.

In that day a man and his sons might cut and hew the timbers for a new dwelling and frame them stoutly on the ground. But before the walls could be raised, before the roof could go on, these builders needed and received the help of their neighbors. It was given generously in the old Colonial "house raising."

The same necessity for being a good neighbor, for helping the other fellow whenever he needed help, was recognized in all departments of early American life. Days of labor and the use of teams were exchanged as conditions of the crops demanded. And in time of sickness, fire, drought, attack, each man was in truth his brother's keeper.

In spite of the specialization of modern times, the speed and the scope of business and social life, there is, more than ever, the need for the good old American virtue of being a neighbor. No longer are you called upon to help the other fellow frame and raise his house, or to fight shoulder to shoulder with him against a common foe. But it is your responsibility to support, as you are able, institutions that minister to his welfare and the welfare of his family as definitely as a pioneer ever helped his neighbors. Hospitals, clinics, day nurseries need and deserve your help. . . . So do homes for the aged, the blind, the incurable. . . . So do the agencies that build the youth of your community.

It's still necessary to be a good neighbor. And it's still possible. Support your Community Chest. Answer local welfare appeals. You will be the best possible neighbor in your own neighborhood!

Gurdon Wrope

Chairman,
National Citizens' Committee

All facilities for this advertisement furnished the committee without cost

MOBILIZATION FOR HUMAN NEEDS—1935

Mention THE AMERICAN CITY—it helps.

Zanesville, Ohio

Population	40,000
" served	40,000
Number of services	11,682
" " meters	1,425
" " hydrants	Unknown
Miles of water main	110 0

All metered services other than those using more than 2,500 cu. ft. per month are billed quarterly at the rate of 75c per 1,000 cu. ft., with a minimum charge of $2.10 per quarter. A 5% discount is allowed if the bill is paid within 30 days. Services outside the city limits are charged 10% additional. All metered services averaging more than 2,500 cu. ft. of water used per month are billed monthly at the same rate of 75c per 1,000 cu. ft., and there is no minimum bill.

Upon application for new services, and payment in advance, the city taps the main and carries the line to the curb key and installs the key and box. Future repairs or renewals of this service line are made by the city at the expense of the owner. The present prices for service taps, which have been in effect since March 1, 1920, are:

1" paved street	$23 00
" dirt "	20 00
1" paved alley	17 50
1" dirt "	15 00
¾" paved street	20 00
¾" dirt "	17 00
¾" paved alley	15 00
¾" dirt "	12 50

Meters are sold outright to the consumer at cost upon request and are installed by licensed plumbers. Repairs to meters are made by the city at the owner's expense.

No charge is made by the Water Works Department for public fire hydrants nor to private owners for private fire hydrants and sprinklers for fire protection.

W. J. MENDENHALL,
Secretary, Water Works Department.

Portland, Maine

Population	71,000
" served	107,000
Number of services	23,752
" " meters	10,606
" " hydrants	1,911
Miles of water main	412.34

The Portland Water District serves not only the city of Portland but certain other consumers in the towns of Scarboro, Cape Elizabeth, Cumberland and Falmouth, and also summer consumers in Prout's Neck and Higgins Beach and in the Two Lights Division, which is a section of the town of Cape Elizabeth served through surface pipes.

The schedule of water rates per quarter for metered services in Portland is:

First 1,500 cu. ft. or any part thereof	$ 2 50
Next 4,500 " " " " "	20c per 100 cu. ft.
" 6,000 " " " " "	12c " " " "
" 6,000 " " " " "	10c " " " "

When the consumption of water shall exceed 18,000 cu. ft. the rate shall be:

First 30,000 cu. ft. or any part thereof	14c per 100 cu. ft.
Next 30,000 " " " " "	12c " " " "
" 30,000 " " " " "	10c " " " "
All in excess of 90,000 cu. ft.	7c " " " "

A discount of 5% is allowed on all water bills if paid within 15 days from the date rendered. No abatement of the minimum meter rate is made on account of vacancies, unless the water is shut off for a full quarter-year. Water bills are payable on the first day of January, April, July and October for the preceding three months.

The season rates applying to summer residents and others who occupy dwellings or use water for other purposes for a part of the year only, are made up of a ready-to-serve charge and an additional charge as follows:

READY-TO-SERVE CHARGE

⅝" meter	$ 5 00
¾" "	8 00
1" "	12 00
1½" "	20 00
2" "	30 00

METER RATES—SUMMER RESIDENTS PER SEASON

First 12,000 cu. ft. or any part thereof	20c per 100 cu. ft.
Next 12,000 " " " " "	12c " " " "
" 12,000 " " " " "	10c " " " "
When the consumption exceeds 36,000 cu. ft. per season, the rate is:	
First 60,000 cu. ft. or any part thereof	14c per 100 cu. ft.
Next 60,000 " " " " "	12c " " " "
" 60,000 " " " " "	10c " " " "
All in excess of 180,000 cu. ft.	7c " " " "

When more than one building is supplied through the same service, a ready-to-serve charge must be paid for each building except for a private garage or stable appurtenant to the building. All season services must be installed and kept in repair at the expense of the consumer. Water for season services is furnished from May 1 to November 1 only.

The schedule of rates for Prout's Neck and Higgins Beach includes a charge of 40c per 100 cu. ft. for all water drawn, and a ready-to-serve charge which is the same as for the season rates.

The Two Lights Division of the Portland Water District pays 40c per 100 cu. ft. for all water consumed, and in addition a ready-to-serve charge for each season, as follows:

⅝" meter	$15 00
¾" "	18 00
1" "	22 00
1½" "	30 00
2" "	40 00

The schedule of rates for consumers in the towns of Scarboro, Cape Elizabeth, Cumberland and Falmouth includes a ready-to-serve charge and a charge for water consumed per quarter, as follows:

First 6,000 cu. ft. or any part thereof	20 per 100 cu. ft.
Next 6,000 " " " " "	12 " " " "
" 6,000 " " " " "	10 " " " "
When the consumption exceeds 18,000 cu. ft. per quarter, the rate is:	
First 30,000 cu. ft. or any part thereof	.14 per 100 cu. ft.
Next 30,000 " " " " "	.12 " " " "
" 30,000 " " " " "	.10 " " " "
All in excess of 90,000 cu. ft.	.07 " " " "

The ready-to-serve charges per quarter for these towns are:

⅝" meter	$ 1 25
¾" "	2 00
1" "	3 00
1½" "	5 00
2" "	7 50
3" "	15 00
4" "	30 00
6" "	60 00

Every person desiring a service must make a formal application at the office of the District on blanks furnished for that purpose. Service pipes are provided and maintained by the District from the main to the street line of proper size and in appropriate location. The service pipes within the premises must be kept in good repair and protected from frost by the property owners. Every service pipe must be provided with a stop and waste cock on the inside of the cellar or foundation wall, and near where the pipe passes through the wall. When different families or tenants are supplied with water in the same building, a suitable stop and waste cock must be provided for each.

An owner or occupant of premises in which a meter furnished by the District is used, who fails to keep his service pipe and fixtures in good repair and neglects to repair them within three days after they have become defective from any cause whatsoever, and a consumer who fails to pay a quarterly bill within 15 days after it is due, may have service discontinued. Water is not again turned on except on the payment of $2.00 and all arrears, and in the case of damaged service lines, all repairs completed satisfactory to the District.

There is no charge for public fire protection in the city of Portland proper, for the reason that an old ordinance contract, dated 1869, provides that the city of Portland shall have free water for municipal purposes forever.

The provision is only varied by a contract existing in Deering, a suburb of Portland, wherein hydrant contracts were made at $30 per hydrant for a term of 20 years, and some 50 or 60 of these contracts remain unexpired.

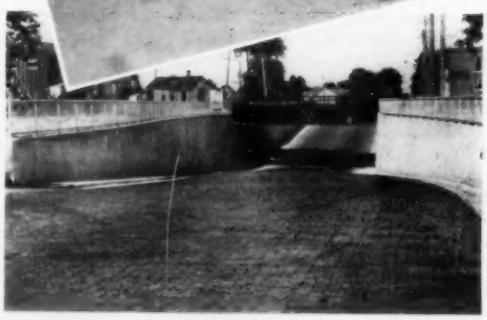
The schedule of public fire protection filed as of January 1, 1934, now provides that the city of Portland shall continue payment indefinitely for those hydrants the earlier contracts for which have not expired.

In the other divisions of the Portland Water District, there are various amounts paid for public fire protection, the amount being based on the unexpired hydrant rentals which were used as a basis for a permanent charge. They are as shown on the following page.

Reprints of Water Rates published in 1935 will be available to readers of The American City early in 1936.

FOR UNDERPASSES ...where traffic is brutal

(Top) *Big Four on U. S. 40 near Columbus, O.;* (Center) *Atlantic Coast Line, Bainbridge St., Richmond, Va.;* (Bottom) *Sangamon Ave., Springfield, Ill.*



● Underpasses impose unusual and severe service conditions on pavements. Pave them with brick.

Concentrated Traffic

On underpasses there is a concentrated traffic of both trucks and fast moving vehicles. Often there is street car traffic. Repairs to pavement in this vital spot discommodes traffic for miles around and means using hazardous grade crossings. Brick pavement can stand the punishment, without failure.

Unusual Moisture Conditions

Then there are unusual moisture conditions and poor drainage due to depressing the grade to obtain headroom. A brick surface is non-absorbent—moisture and freezing do not affect it. Moisture is sealed away from the base. Brick protects against damage from the elements as well as from traffic.

The brick pavement will not be damaged by quick braking or rapid acceleration of heavy loads. An underpass, so paved, will give long, trouble-free life.

Send for free brochure describing the use of brick pavements for underpasses. Write National Paving Brick Association (Affiliated with Structural Clay Products, Inc.) 1245 National Press Building, Washington, D. C.

BRICK

FOR NEW CONSTRUCTION OR RESURFACE JOBS

Do you mention THE AMERICAN CITY? Please do.

Division	Amount Paid Per Year	Number of Hydrants
Gorham	$290	12
Gorham Village	1,560	39
Windham	105	6
Westbrook	1,030	164
Deering	1,980 (for the balance of unexpired contracts)	
South Portland	2,880	225
Falmouth	5,220	85
Cumberland	990	35
Scarboro	4,020	90
Cape Elizabeth	4,220	95
Island Division	300	5
Peaks Island	2,700	45 and 60 for 12 hydrants at $5 per month

The Water District will install additional hydrants on existing mains 6″ or more in diameter where there is no ledge, or charge for street opening, for an annual charge of $15 for each additional hydrant; cost of street opening and removal of ledge for hydrant branch to be paid by the municipality.

Water is supplied for fire protection on private premises at the following rates:

Private hydrant with 6″ connection or larger	$30.00 per year
" " " connection less than 6″	20.00 " "

For each service entering a building for the supply of standpipes or sprinklers, an annual rental according to the diameter of the service, as follows:

2″ service,	$7.50 per year and 1c additional for each sprinkler head	
4″ "	15.00 " " " " " " " " "	
6″ "	30.00 " " " " " " " " "	
8″ "	60.00 " " " " " " " " "	

Wherever there are more than one such connection, hydrant or service entering a building, or both on the same premises from a single 6″ connection with the street main, or more than two from a single 8″ connection with the street main, or more than four from a single 10″ connection with the street main, the rate for all such hydrants or services entering a building in excess of said one, two or four, as the case may be, is one-half of the aforesaid rates.

F. J. Reny.
Treasurer, Portland Water District.

Macon, Ga.

Population	60,000
" served	75,000
Number of services	14,000
" " meters	14,000
" " hydrants	717
Miles of water main	190.0

Water rates in Macon are based on the average daily use of water for domestic service. The rates where the average daily use is less than 3,000 gals. is 20c per 1,000 gals. and 30c per 1,000 gals. outside the city. The rates for larger average daily usage are as follows:

3,000 to 6,000 per day	20
6,000 " 10,000 " "	18
10,000 " 15,000 " "	15
15,000 " 20,000 " "	12

For industrial uses where the monthly averages are greater than the largest daily use in the table above multiplied by 30, the rates are as follows:

600,000 to 3,000,000	$ 11
3,000,000 " 4,000,000	10
4,000,000 " 6,000,000	08
6,000,000 and over	05

The minimum charge per month inside the city is 60c, and outside the city $1.00.

The rates charged for making various sizes of taps are as follows:

¾″ tap and ¾″ curb cock	$ 7.00
1″ " " 1″ " "	9.00
1¼″ " " 1¼″ " "	17.50
1½″ " " 1½″ " "	27.50
2″ " " 2″ " "	40.00

All fire service charges have been eliminated on public hydrants, and the rate for private fire hydrants has been reduced from $50 each per year to $15 each per year.

R. E. Findlay,
Secretary and Treasurer, Board of Water Commissioners.

Columbia, Mo.

Population	15,000
" served	15,000
Number of services	4,500
" " meters	4,500
" " hydrants	394
Miles of water main	56.0

The water rates in Columbia are:

First	5,000 cu. ft.	25c per 100 cu. ft.
Next	15,000 " "	22c " " " "
All over	20,000 " "	20c " " " "

Minimum charge 60c per month.

Water services are run from the main to the parking area at the curb under standard charges, as follows:

¾″ service	$ 5.00
1″ "	7.50
1½″ "	15.00
2″ "	20.00

This includes setting the meter, the meter tile, and the cast iron cover.

Public fire hydrants are free and there is a standard charge of $6.00 per year for services connected to private sprinkler systems. The city is 100 per cent metered. There are no flat-rate customers.

D. Elrow Crane,
Chief Engineer and Superintendent, Water and Light Department.

Shreveport, La.

Population	80,000
" served	85,000
Number of services	16,000
" " meters	15,656
" " hydrants	965
Miles of water main	222.6

The meter rates for Shreveport, La., are:

First	50,000 gals. or any part thereof per mo. at	25c per 1,000 gals.
Next	75,000 " " " " " " " "	20c " " "
"	75,000 " " " " " " " "	15c " " "
"	300,000 " " " " " " " "	10c " " "
All in excess of 500,000 gals. per mo. at		8c " " "

On bills paid within 10 days after the bill becomes due, a reduction is allowed by calculating the first 50,000 gals., or any portion thereof, at 22½c instead of 25c, but no reduction is allowed to any consumer owing a bill in arrears. Bills under investigation must be paid within the specified time, or no reduction is allowed. All water, except for fire protection, furnished to the various departments of the city of Shreveport and to public schools, parks, public institutions, etc., is measured by meter and charged for as any other consumer is charged. Upon the approval of the City Council, the Water and Sewerage Department may allow public schools, charitable institutions or other persons being taken care of by a charitable organization, a certain amount of water without charge, but in every instance this amount must be specified, and any amount consumed over and above the amount allowed is charged for the same as any other consumer is charged. The city is billed $40 per hydrant per year, but no actual cash is paid, it being merely a bookkeeping charge.

All services are paid for by the owners of property, but thereafter are maintained by the Department. All meters, except those on services supplying water for protection against fire and intermittent use, are placed, maintained and renewed by and at the expense of the Water Department. Each residence, factory or place of business is furnished water service only through a meter assigned to it by the Department, and no such residence, factory or place of business is permitted to furnish water through this meter to any other consumer.

If bills are not paid within 10 days after due, the water service may be discontinued without further notice. When it becomes necessary to cut off water on account of non-payment of bills, the Department charges a fee of 35c for turning on the water. This fee becomes a part of the bill and must be paid before water is turned on.

The rates for water service for the extinguishment of fire through private pipe and fixtures are as follows:

Each fire hydrant, $40 per year
Each opening not over 2″ in diameter other than regular fire hydrants, $10 per year
Sprinkler system, minimum charge of $35 per year for 700 heads, each additional head over 700, 5c per year.

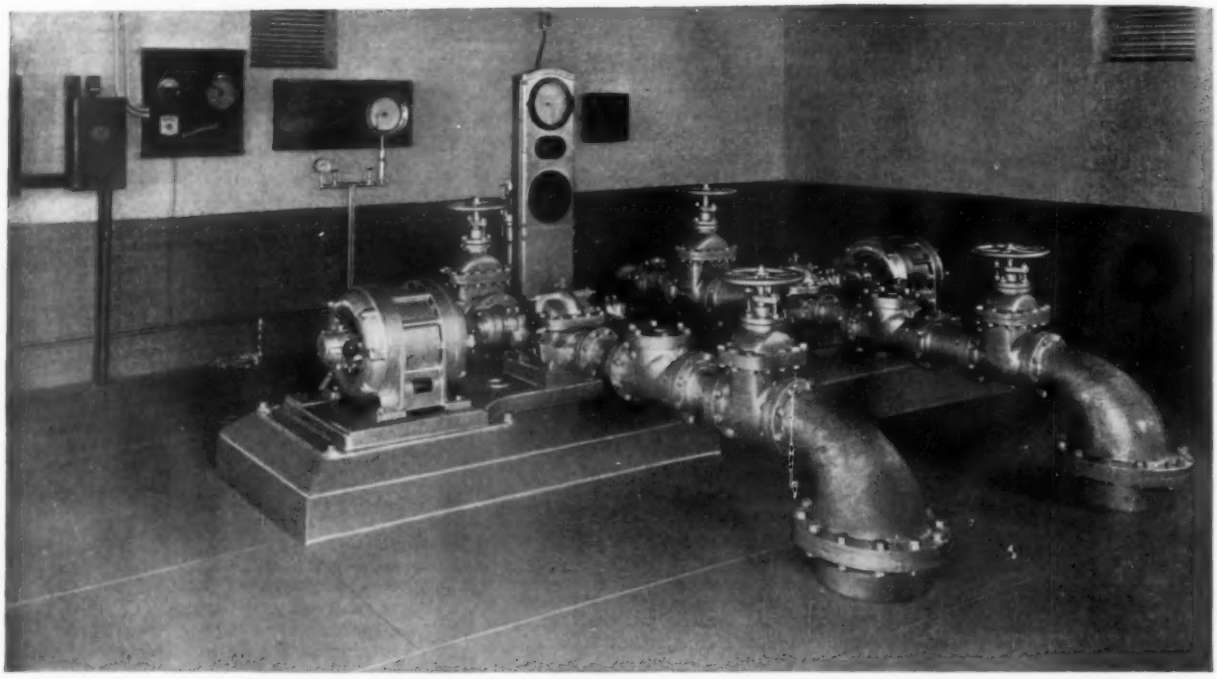
Thomas L. Amiss,
Superintendent, Department of Water and Sewerage.

Syracuse, N. Y.

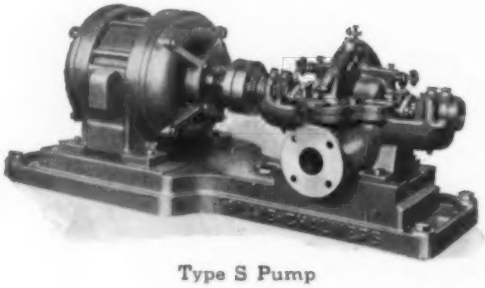
Population	223,108
" served (approx.)	228,000
Number of services	41,781
" " meters (approx.)	40,000
" " hydrants	5,004
Miles of water main	376.70

The minimum rate per family for water is $1.50 per quarter in advance. The advance allowance for each family is 1,250 cu. ft. per quarter. Any water used each quarter above the minimum is billed at 12c per 100 cu. ft. for the first 30,000 cu. ft., 9c per 100 cu. ft. from 30,000 to 60,000 cu. ft., and all in excess of 60,000 cu. ft. at 7c per 100 cu. ft. The special meter rates for large consumers are 12c per 100 cu. ft. for the first 30,000 cu. ft. per quarter, 9c per 100 cu. ft. for 30,000 to 60,000 cu. ft., and all over that amount at 7c per 100 cu. ft. These accounts are billed monthly. For charitable institutions, the regular meter rates

A Booster Station . . .



. . . With Low Operating Cost



Type S Pump

TWO ALLIS-CHALMERS Centrifugal Pumping Units were recently installed in the city of University Park, Texas. They are used as boosters to increase the pressure of the water from the City of Dallas mains. The station is entirely automatic, no attendant being required. The elevated tank is located about one mile from the pump station and each unit is started and stopped at the desired water level by use of independent float switches. The low operating cost of this station is secured in large part by using pumping units having high efficiency over the entire operating range. The pumps are Allis-Chalmers 5"x4" Type SHH rated 800-gpm against 160-ft head with 50-hp, 3550-rpm across-the-line Allis-Chalmers motor and 4"x3" SHH rated 500-gpm against 150-ft head, driven by a 30-hp motor.

When you need centrifugal pumps from 30-gpm to 30,000 or more and motors or turbines to drive them, get in touch with Allis-Chalmers.

ALLIS-CHALMERS

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, U.S.A.

are charged, with 90% discount. A limit of consumption at this rate, however, may be set for each individual case by the city, and any excess amount may be charged at regular rates. The rates for schools other than public schools is 3.5c per 100 cu. ft. Any water used outside the city limits for dwellings is charged for at a rate 50% higher than that charged in the city.

Applications for a water service from the street main to the curb must be made in writing at the office of the City Treasurer by the owner of the premises or his agent. When the application is made by a plumber as special agent of the owner, the application must be accompanied by a contract with the owner for doing this particular work. When the service is to be larger than 2", a sketch of the proposed service showing the location and type of use to be supplied must be filed with the City Engineer and approved by him before the application will be accepted. No person except a regular employee of the city is permitted to make any connection for a service with the pipes of the city water works, or to make any additions or alterations to any pipes supplying water to consumers from the water works. It is also forbidden to lay any service pipe connected therewith or remove or tamper with any meter, check valve, reducing valve, or any other piece of equipment required and controlled by the city, unless such persons have a permit to do such work from the city. Application for a permit to connect to the service pipes at the curb must be made by the plumber doing the work on the premises to be supplied with water. The application must state the number of apartments in the building.

In the opening of any street or public grounds for the introduction of a service pipe or connection, under authority of a permit from the city, the owner and plumber are each held responsible for the trench opened by them. Whenever any street or public ground is opened, public safety and convenience must be duly regarded and conserved by the construction of necessary bridges across open trenches to properly provide access and insure safety to the public. The owner of property into which water is introduced by a service pipe is required to maintain it in perfect order at his own expense from the curb cocks to his premises. In case such a service is not kept in repair, the city may shut off the supply of water until satisfactory repairs are made.

No charge is made for public fire hydrants. For private fire hydrants and other fire services, the city reserves the right to limit the size of the pipe used, depending upon such local conditions as the size of the street main, feed and pressure. Application for a permit to install a fire service must be accompanied by a plan of the proposed piping system for approval. No change in or additions to existing systems may be made without a permit from the City Engineer, which is issued only when plans of proposed changes have been submitted and approved by the Department of Engineering. The entire cost of materials, installation and maintenance of a fire service from the main to the building or within the limits of the premises is borne by the owner of the property supplied. All construction and maintenance between the main and curb is done by the city at the expense of the owner, but the work between the curb and the property must be done by the owner. Failure to make necessary repairs after proper notice by the city may result in the shutting-off of the water until repairs are made.

A uniform charge of $350 for the installation of fire services to the curb is made for paved and $250 for unpaved streets. This charge is based on the average cost of installing fire services throughout the city at large under all conditions. Payment must be made in advance at the time of application for service.

ELON P. STEWART,
Division Engineer of Water, Department of Engineering.

Butte, Mont.

Population	39,532
" served	55,000
Number of services	11,350
" " meters	884
" " hydrants	768
Miles of water main	240.0

The Butte Water Co. furnishes, installs and keeps in repair all meters without cost to the consumer, except secondary meters, for which a charge of $1.00 per month is made. In all cases where meters are placed, the cost of arranging the pipes to receive the meters, and the cost of a proper receptacle or meter box to prevent the meter from freezing, must be borne by the consumer or owner of the premises. Meter rates are divided into commercial and industrial rates. The minimum for commercial rates is 300 cu. ft. per month, and the minimum for industrial rates is 80,000 cu. ft. per month. The rates are as follows:

COMMERCIAL RATES

First 300 cu. ft. or less	$2.00
Next 3,700 " " at 21c per 100 cu. ft.	
" 76,000 " " " 17c " " " "	

INDUSTRIAL RATES

With a minimum consumption of 80,000 cu. ft. per mo. 80,000 cu. ft. or less per mo. $120.00
Over 80,000 cu. ft. at 15c per 100 cu. ft.
2,000,000 cu. ft. or over 13c per 100 cu. ft.

We believe that the water rates for Butte and the adjacent communities supplied by this company are as high as or higher than in any other community in the United States, for the reason that we pump over 50 per cent of the water a distance of over 27 miles across the continental divide against a pressure of 840 feet at the pumps. We also pay the highest wages in the United States for waterworks employees, ranging from $7.50 per day for our engineers to $5.40 per day for common labor. These two items account for the fact that the cost of water delivered to the consumers in Butte and vicinity is probably greater than in any other community of like size in the United States.

Contracts for water are entered into between the Water Company and owners of property or their authorized agents, or with tenants. The company requires a deposit equal to 1½ times the estimated amount of the monthly or billing-period bill, as a guarantee of payment. The application for the use of water must be made at the Water Company office on a printed form for that purpose. Interest on consumers' deposits is paid at the rate of 6% per year, provided the deposits are left with the company for one month or longer. The application must be signed by the owner of the premises, and when the application has been granted, the company at its own expense taps the mains, furnishes the corporation cocks and clamps when necessary, and any other material used or labor required in connection with the tapping of the mains. All expense of laying and maintaining the service pipe from the mains to the consumer's premises is borne by the consumer.

All fire hydrants, both public and private, are charged at the rate of $3.00 per month per hydrant. All sprinkler systems for fire protection are metered.

EUGENE CARROLL,
Manager, Butte Water Co.

Topeka, Kans.

Population	67,000
" served	68,000
Number of services	15,956
" " meters	15,956
" " hydrants	1,150
Miles of water main	180.0

The water rates in Topeka are as follows:

1st 1,000 cu. ft.	@ 45c per 1,000 gals.			$3.37
2nd 1,000 " "	@ 40c " " "	$3.00		6.37
3rd 1,000 " "	@ 32c " " "	2.40		8.77
4th 1,000 " "	@ 26c " " "	1.95		10.72
5th 1,000 " "	@ 24c " " "	1.80		12.52
2nd 5,000 " "	@ 22c " " "	8.25		20.77
3rd 5,000 " "	@ 21c " " "	7.87		28.65
4th 5,000 " "	@ 16c " " "	6.00		34.65

All above 20,000 cu. ft. @ 12c per 1,000 gals.

The former 40-cent minimum charge has been eliminated.

Section 1, Ordinance No. 5941, governs the application for water service and states that any person desiring to use city water must first make application on a blank furnished by the Department, deposit with the Commissioner of Water Works and Street Lighting the sum of $3.00 as a guaranty for the prompt payment of bills, and if in the judgment of the Commissioner this sum is not sufficient to protect the city against loss, then the amount of the deposit may be increased. The deposit is forfeited if any water consumer refuses, neglects or for any reason fails to pay for water furnished or other service from the Department.

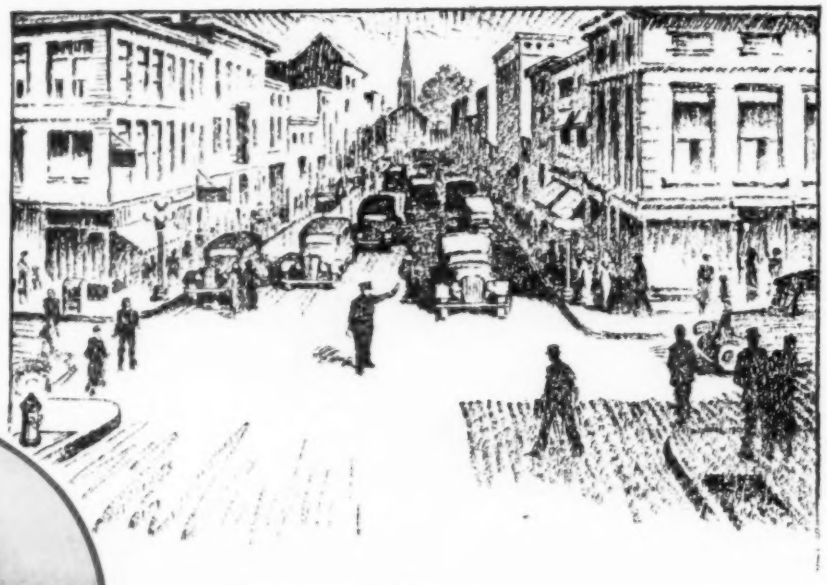
Section 1591 states that no person, firm, corporation or association, nor any city department, shall be allowed free use of water, nor shall there be discrimination among water users of like classes as to rates; and rebates in rates shall never be allowed to any person, firm or corporation or city department.

In spite of the above ordinance, there is no charge this year for public fire hydrants. Private hydrants are metered, and there is no charge for sprinklers installed solely for fire protection.

H. H. HUFFMAN,
Superintendent, City Water Department.

Pick out the corner

where most hydrants are broken



and install a SAFETOP Fire Hydrant

Five Important SAFETOP Features

1—Fully as strong as other makes of fire hydrants
2—Protects occupants of colliding vehicles from serious personal injury
3—If broken by a smashing impact, can be repaired by one man, within half an hour, at a total cost of less than $10.00.
4—Will not cause flooding on accidental breakage
5—Repairs after breakage do not require excavating or shutting off the water supply

IS THERE a street in your community with a bad record for vehicular accidents due to blind corners, steep grades, or traffic density? If so, you can greatly reduce the fatalities, the property damage and the repair expenses arising from collisions which involve fire hydrants by installing Kennedy SAFETOPS.

These unique hydrants, while amply strong to resist ordinary impacts, give way at the Safety Breakable Section if struck in a smashing collision. Breakage of this section prevents the serious consequences that usually follow severe impacts against other types of hydrants. There is no flooding, the water supply need not be shut off while awaiting or making repairs, and the hydrant can be returned to service by one man, within half an hour, without excavating, and at a total cost of less than $10.00 for new parts and labor.

In addition to these important benefits, the Kennedy SAFETOP Fire Hydrant responds promptly and effectively to service demands. Its large-diameter standpipe and smooth water passages keep pressure loss to a minimum, and its simple, sturdy, straight-line mechanism functions easily and positively.

Write for prices and full information.

THE KENNEDY VALVE MFG. CO., ELMIRA, N. Y.

KENNEDY SAFETOP FIRE HYDRANT

REG. U.S. PAT. OFF.

Denver, Colo.

Population	285,000
" served	325,000
Number of services	70,500
" " meters	1,450
" " hydrants	4,479
Miles of water main	864.0

The rates for water furnished through metered services in the city and county of Denver are as follows:

First	15,000 gals. per mo.	.19 per	1,000 gals.
Next	15,000 " " "	.18 "	" "
"	30,000 " " "	.17 "	" "
"	90,000 " " "	.15 "	" "
"	165,000 " " "	.14 "	" "
"	322,500 " " "	.13 "	" "
"	15,362,500 " " "	.10 "	" "
All water consumed over 16,000,000 gals. per mo.		.08 "	" "

For water furnished through metered services outside the city and county of Denver the following rates are charged:

First	100,000 gals. per mo.	.25	per 1,000 gals.
Next	400,000 " " "	.20	" " "
"	500,000 " " "	.17½	" "
"	1,000,000 " " "	.15	" "
All water in excess of 2,000,000 gals. per mo.		.12½	" "

In addition to the rate for water measured by meters, a monthly ready-to-serve charge is made in all cases, whether in or out of the city, as follows:

½" to ⅝" meter	$ 0.85
¾" "	1.05
1" "	1.65
1¼" "	2.40
1½" "	3.35
2" "	5.70
2½" "	8.75
3" "	12.45
4" "	21.95
6" "	49.05
8" "	86.90
12" "	195.05

The minimum monthly charge for each service supplying any consumer for business or manufacturing purposes within the city and county of Denver is as follows:

½" to ⅝" meter	$ 3.00
¾" "	4.00
1" "	7.50
1¼" "	14.50
1½" "	20.00
2" "	30.00
2½" "	38.50
3" "	50.00
4" "	100.00
6" "	150.00
8" "	250.00
12" "	500.00

The minimum monthly bill for each metered service supplying water for domestic purposes outside the city and county of Denver is $2.00.

In case a consumer has two or more services used in one line of business or manufacture, the charge per 1,000 gals. is on the basis of the combined consumption through all such services.

A 10 per cent reduction in all rates above enumerated has been made recently.

As in the case of many western cities, there are special irrigation rates. In Denver, the regulation is: "Irrigation of lots, including sidewalks and trees, only through hose with nozzle not to exceed ¼ of 1" in diameter, to be used only within the hours specified in the license and never during a fire or conflagration. 22c less 20% per front foot for the season. Irrigation in parking 8c per run foot. Where irrigation is used outside of property line along the side of irrigated corner lots, the frontage is counted to include one-half lot additional. Where there is a house facing the front and a house or houses facing the side of a corner property and belonging to different owners, the irrigation charge shall be arrived at by taking the present rate of charge as a basic rate and dividing this basic rate proportionately among the various owners according to their proportionate part of the depth of the property figuring from the front of the lots. There shall then be added to the house occupying the street corner portion of the property and having irrigation on the front and side 20% of its proportion of the basic charge as a corner charge. No license for irrigation will be issued for less than the season rate." These rates were reduced 20% on August 1, 1932, the rate quoted being the published rate of 1928.

The city of Denver pays $22.50 per year per hydrant for fire service, and private hydrants are charged at the rate of $40.00 each per year.

C. C. SCHREPFERMAN,
Manager of Construction, Board of Water Commissioners, City and County of Denver.

Paducah, Ky.

Population	55,138
" served	cost of city
Number of services	8,070
" " meters	8,036
" " hydrants	921
Miles of water main	75.82

The water rates in Paducah are:

First	10,000 gals. per mo. at	30c	per 1,000 gals.
Next	90,000 " " "	20c	" " "
"	400,000 " " "	15c	" " "
"	500,000 " " "	10c	" " "
"	1,000,000 " " "	8c	" " "
"	8,000,000 " " "	7c	" " "
Over	10,000,000 " " "	6½c	" " "

The following minimum charges cover the supply of water at the rates stated, up to the total of such minimum charge:

⅝" meter	$ .75 per mo.
¾" "	1.25 " "
1" "	2.25 " "
1½" "	4.50 " "
2" "	7.50 " "
3" "	15.00 " "
4" "	22.50 " "
6" "	45.00 " "

The water works installs and thereafter maintains all water services complete from its main to and including the water meter set inside the street curb. The property owner or applicant for water service installs at his own cost the connections necessary from the meter.

The charges for hydrants and the use of the mains for water for fire service for public fire protection are:

Each fire hydrant, $10.00 per yr.	
" lineal ft. of 4" pipe	.5c per yr.
" " " " 6" "	7½c " "
" " " " 8" "	10c " "
" " " " 10" "	12½c " "
" " " " 12" "	15c " "
" " " " 14" "	17½c " "
" " " " 16" "	20c " "
" " " " 20" "	25c " "
" " " " 24" "	30c " "

The charges for services for private fire protection are:

1" connection	$10.00 per year
1¼" "	15.00 " "
1½" "	18.00 " "
2" "	24.00 " "
3" "	48.00 " "
4" "	72.00 " "
6" "	96.00 " "
8" "	120.00 " "

LOIS SUTHERLAND,
Treasurer, Paducah Water Works.

Oklahoma City, Okla.

Population	214,175
" served	175,000
Number of services	33,538
" " meters	32,321
" " hydrants	1,738
Miles of water main	330.43

For all water delivered through a meter within the corporate limits of the city the charge is as follows:

		Per 1,000 Gals. Gross	Discount	Net
First	100,000 gals.	$0.22	$0.02	$0.20
Next	400,000 "	0.20	0.02	0.18
"	4,500,000 "	0.16	0.02	0.14
Above	5,000,000 "	0.11	0.02	0.09

For all water for domestic services only, delivered outside the corporate limits of the city, a 50% additional charge is made.

In addition to the charge for water used, there is a monthly charge for the maintenance and service on each meter, as follows:

	Gross	Discount	Net
⅝" meter	$0.55	$0.05	$0.50
¾" "	0.95	0.10	0.85
1" "	1.65	0.15	1.50
1½" "	3.30	0.30	3.00
2" "	5.50	0.50	5.00
3" "	11.00	1.00	10.00
4" "	16.50	1.50	15.00
6" "	33.00	3.00	30.00

T. G. BANKS,
Superintendent and Engineer, Water Department.

Sumter, S. C.

Population	15,000
" served	11,000
Number of services	2,750
" " meters	2,750
" " hydrants	204
Miles of water main	55.0

The schedule of water rates in the city of Sumter is as follows:

		Rate	Net	Net Total
1,000 to	30,000 gals.	.20	6.00	6.00
30,000 "	100,000 "	.15	10.50	16.50
100,000 "	200,000 "	.12	12.00	28.50
200,000 "	300,000 "	.10	10.00	38.50
300,000 "	500,000 "	.08	16.00	54.50
Over	500,000 "	.06		

The bills are net, with no discount allowed. Accounts are rendered on the first of each month, and payment must be made at the office of the City Treasurer on or before the 10th day of each month following the receipt of the bill. Accounts remaining unpaid after the 10th of the month are cut off for non-payment. A courtesy card is mailed on the 10th and cutting-off is done after three days from time of posting. If the service is discontinued, a charge of $1.00 is made for reconnecting each service.

There is no charge for public or private fire hydrants or sprinklers used for private fire protection.

F. K. ELLIS,
Superintendent, Water Department.

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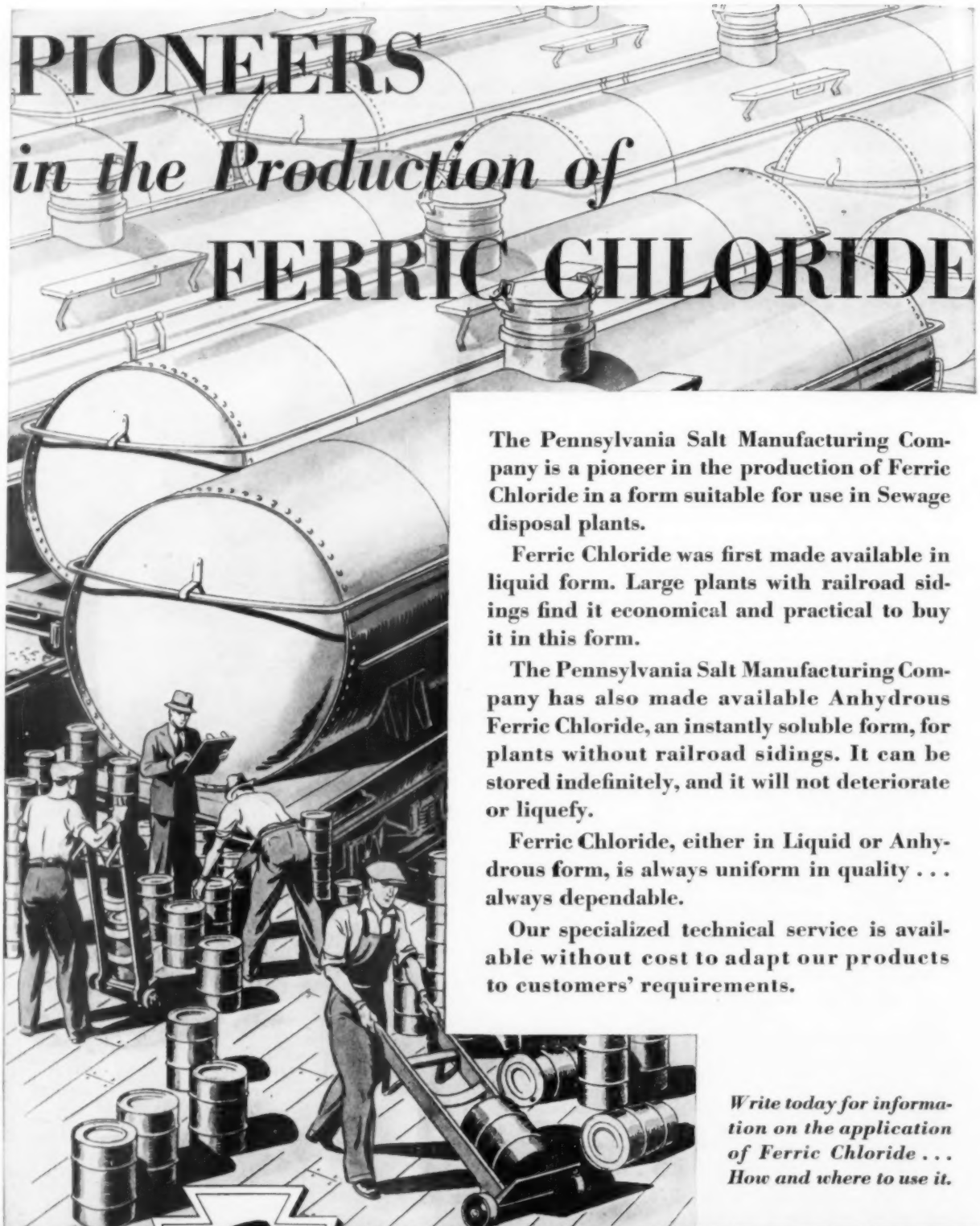
FERRIC CHLORIDE



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The Pennsylvania Salt Manufacturing Company has also made available Anhydrous Ferric Chloride, an instantly soluble form, for plants without railroad sidings. It can be stored indefinitely, and it will not deteriorate or liquefy.

Ferric Chloride, either in Liquid or Anhydrous form, is always uniform in quality . . . always dependable.

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Current Items from the
Public Administration Clearing House

City Purchases Exempt from Federal Excise Tax

BEGINNING October 1, all purchases made by cities for their exclusive use are exempt from the manufacturers' excise tax provisions of the Federal Revenue Act. This is pointed out in a recent letter sent to mayors and other city officials by Paul V. Betters, Executive Director of the U. S. Conference of Mayors and the American Municipal Association. The two associations proposed and sponsored the amendment, which Mr. Betters finds "one of the most important pieces of legislation passed at the last session of Congress so far as cities are concerned."

In the past, sales of certain commodities to cities and states were exempt from the manufacturers' excise tax only in those cases where the articles were to be used in connection with "an essential governmental function." The Bureau of Internal Revenue ruled that such municipal functions as the operation of parks and playgrounds, transportation facilities such as railways, bus lines, airports, wharves, docks, and warehouses, and public utilities such as water, light, heat and power and even cemeteries, were non-essential functions. This meant that purchases for these departments were taxable, whereas those made for police and fire departments, and the like, were exempt. "This confusing situation," Mr. Betters says, "has now been clarified so that there is no longer any distinction between 'essential' and 'non-essential' governmental functions. The exemption does not apply, however, to city purchases for the personal use of employees or for contractors doing city work."

Items formerly taxable under Title IV of the Revenue Act which will now be tax-free for all municipal services include gasoline and lubricating oils, tires and tubes, autos and auto trucks, auto accessories, radios, mechanical refrigerators, sporting goods, cameras, toilet preparations, chewing gum and matches. Mr. Betters points out that the present amendment places no limitation on the number of sales intervening between the manufacturer and the purchaser, credits or refunds being specifically provided for. Previously, no exemption was allowed where there was more than one intervening sale between the manufacturer and the municipality.

It is suggested that where the manufacturers' excise tax is included on an invoice such tax be deducted before payment and the vendor requested to supply an exemption certificate. "Furthermore," says Mr. Betters, "it would be found helpful for the city purchasing agent to inform vendors of this procedure when placing orders, since it is sometimes difficult to obtain a refund after the tax has been paid."

Industrial Trends and City Planning

"SOURCES of employment not only expand and contract as public demand and the effect of competing products are reflected in payrolls and dividends, but they move about within the various geographic units of the country." Walter H. Blucher, Executive Director of the American Society of Planning Officials, makes this statement in calling the attention to planners to a recent study, "Is Industry Decentralizing?", made by Daniel B. Creamer for the University of Pennsylvania.

The study reveals what changes of location in industry have occurred during the period 1899-1933. Dividing the country for his purpose into three parts,—(1) principal cities, (2) cities of 100,000 and more in industrial areas, and (3) industrial counties,—Mr. Creamer finds the following major characteristics:

1. In the twenty years prior to 1929, which is considered the year of maximum employment, industrial enterprises tended to locate on the fringes of the principal cities, shifting away from towns under 10,000 to cities up to 100,000 population. In the South only, where factories were already scattered, did "dispersion" occur.

2. Since 1919 the country has followed one pattern: in the large satellite cities (those dominated by a metropolitan area) the share of wage jobs constantly diminished, but the percentage remained fairly constant in industrial peripheries of all industrial areas. Increases in wage jobs were noted in the 200 important industrial counties.

3. Towns under 10,000 lost industrial workers chiefly to cities of the class up to 100,000 population. Cities under 10,000 and non-industrial counties lost rather than gained inhabitants engaged in industry. Significantly, only a small fraction of industry has changed location since 1929. Industries which have relocated have diffused among the 200 industrial counties rather than scattered into the remaining 2,800 non-industrial counties.

Such studies as "Is Industry Decentralizing?" (see page 99 of this issue) are suggestive and practically useful for the planner's program of designing, mapping and budgeting city and county developments for present and future, comments Mr. Blucher. It is important for the planner to know that in the period of this study industry has been locating in the larger urban areas and the peripheries of the largest cities of the country, instead of in the isolated, smaller cities. Studies which show how industries and population are related in their movements provide the planner with a frame of reference for all the technical studies which he undertakes.

Cities have always risen on sites endowed with natural factors to sustain and promote habitation, he points out. Some sites, because of excellent land, water, mineral and other resources, are more favorably constituted than others. But without man-planned coordination and programming, and skilfully directed efforts throughout relatively long periods, they do not realize their greatest powers.

"In the future," adds Mr. Blucher, "our large and medium-sized cities need to be fitted out in the most up-to-date manner possible, on a basis of observed and calculable national and regional movements. They must be properly patterned, with chief emphasis on sources of employment, places to live, highways and transportation and utilities. Then these interwoven factors must be coordinated and directed by elective, appointive and lay citizen agencies to obtain well-ordered and efficient places, in which industries can produce and the populations which operate them can live."

Chasing the "Odd Dollar"

GETTING that "odd dollar" either through cutting-down on operating expense or by developing new revenue-producing sources is still a popular administrative procedure among American municipalities. Under the caption "What American Cities Are Doing," in the current issue of *Public Management*, monthly journal of the International City Managers' Association, we find the following items:

Michigan cities are searching for new revenue sources to help them through the first year under the new 15-mill tax limitation. Ionia and Saginaw are concentrating on delinquent water bills; the former has ordered water shut off for users delinquent 30 days after the quarter ending August 1, and the latter has threatened suspension of water service and now requires a $5 deposit from persons not paying their water bills. Grand Rapids is considering plans for operating the sewage-treatment, garbage-disposal and sanitary-sewer system services as utilities.

Nearly 100 Nebraska municipalities have refinanced a total of $6,500,000 of outstanding indebtedness at a saving of between one and one-half per cent in interest rates. Some issues have been authorized and sold which cannot be delivered for from three to eight months.

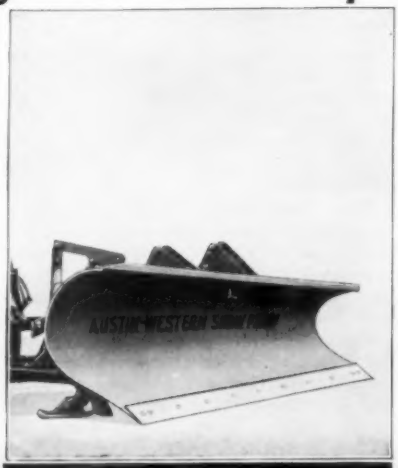
With its tax bills the city of Rome, N. Y., sends a tax analysis showing where the taxpayers' money goes, and asks the citizen to compare the cost of city services with his monthly gas, electric and telephone bills.

A move to legalize traffic zones and islands has been made by the Kansas City, Mo., City Council. Formerly these safety devices were provided under administrative authority, thus being liable to the charge that they were illegal ob-

This Winter...

avoid the high cost of delayed snow clearance

The Austin-Western V-Type Plows because of their weight distribution clear drifts at a minimum of strain on the truck.



The one-way plow for clearing streets at high speeds has a blade curvature in excess of the reversible blade. This extreme curvature reduces friction by rolling the snow, while eliminating its tendency to fly over the blade and back against the truck windshield.

Austin-Western reversible plows may be set at any angle for casting snow on either side, or for bulldozing as conditions require.

Features of the AUSTIN-WESTERN SNOW PLOWS

1. Built for 1½-ton to 2-ton and 2½-ton to 5-ton trucks.
2. Standard push frame. Fits all types of of Austin-Western Plows.
3. Hand hydraulic controls are standard equipment.
4. Mounting and demounting extremely simple.

● The faster your snow plows get on the job during a storm the easier it is to clear the streets—the greater is the saving to the taxpayers and the general public.

It is false economy to save on the cost of one or more snow plows only to spend a hundred times that amount in bucking drifts that have had a chance to form and shoveling out impassable sections by hand. This wastes the community's money to say nothing of the losses to business.

Ask your nearest Austin-Western dealer to estimate the minimum number of plows that you will need based on the number of miles of streets and roads you have to keep clear.

Or, use the coupon for further information.

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structions in the city streets. The new move is in the nature of a safeguard against suits by motorists.

In Yonkers, N. Y., no automobile may be equipped with a short-wave radio without a permit from the Public Safety Commissioner costing $25 annually. Fingerprints of all applicants are taken by the Bureau of Police. The radio may not be transferred to another automobile. This latter provision, it is pointed out, is presumably regulatory, and not for revenue-producing purposes.

Those cities looking to collection of delinquent taxes to swell their coffers may take heart in a recent decision of the Minnesota Supreme Court which ruled as unconstitutional an act permitting the settlement of delinquent taxes for less than the full amount of the original assessment. The Court held that the act violated the uniformity clause of the constitution by discriminating in favor of property owners who fail to pay promptly.

Do Low-Rent Areas Pay Their Way?

WHAT districts can pay for the municipal services they receive, and which ones cannot, problems confronting many cities, were determined for the city of Boston through a recent survey made by the City Planning Board, with FERA assistance, it is reported in the September issue of *Public Management*, magazine of the International City Managers' Association.

Six typical districts were chosen—four residential, one business and one industrial. The formula used was to determine the gross area in acres and the net acreage of taxable properties after eliminating streets, parks and other tax-exempt property; population; and assessed values; then to reduce the income and cost items to units per capita and per gross and net acre.

Resultant figures showed that:

1. The business area paid in taxes over and above cost of municipal services, $110,000 per net acre; the industrial area, $5,300 per net acre; the high-rental residence area, $17,000 per net acre; and the medium-rental residence area, $4,500 per net acre. These four districts, therefore, more than paid their own way.

2. The one- and two-family house, suburban area, was in the red $800 per net acre.

3. The low-rental, depreciated area—slums—was in the red $15,000 per net acre.

The comment is made that "no doubt many other large cities have been similarly subsidizing low-cost housing built by private enterprise to the tune of perhaps 20 per cent of its assessed value annually. And yet to suggest that a city should exempt low-cost housing projects from taxation, as is done in New York, causes hair, eyebrows, and hands to be lifted in shocked surprise."

Hartford, Conn., which over a year ago made a survey of housing conditions in slum areas of the city, found that in five sections selected for intensive study over 200 parcels of land are in arrears in taxes from two to five years.

A Minneapolis property and housing survey of 1934 showed that in the "poor part" of one ward, according to the city Fire Department, "if the fire alarms answered in this district are charged against the district at the average cost of fire alarms, the total taxes assessed against the district are more than absorbed by this one item. . . ."

Aerial Maps Reveal Unassessed Property

MAP from the air as well as on the ground.

This advice is given municipalities struggling with reappraisal problems largely imposed by the rapid changes in property values of the past few years.

Writing in the current issue of *Municipal Finance*, the monthly journal published by the Municipal Finance Officers' Association, Charles Emerson, who has had considerable experience in aerial mapping for tax use, promises that "any municipality which couples the aerial survey with a just tax re-appraisal will be able to recoup all costs incidental to the work within one year." A prime value of such maps, it is stressed, lies in the fact that many pieces of unassessed property are thus revealed.

It is comparatively simple, Mr. Emerson explains, to make aerial photographs which will fit in directly with any scale of ground survey desired. The focal length of the lens is first multiplied by the scale in feet desired on the negatives. If finished tax maps are to be on a scale of 1 inch equals 100 feet, the negatives should be to an approximate scale of 1 inch equals 800 feet. With this negative scale and a 20-inch lens, the plane must fly at an altitude of 16,000 feet.

When the mapping has been done, each negative is checked for tilt, change of plane altitude, and the like, and the ratio of correction figured for each exposure. This ratio is again checked to ground control, and the tax maps are then thrown up by enlargement to the controlled scale. For congested areas a scale of 1 inch to 100 feet is recommended, though 1 inch equals 200 feet is considered sufficiently accurate for rural or agricultural sections.

Because every physical and cultural feature such as fences, stone walls, curbs and so on is readily located, the tax maps may be completed in one-third the time required for any other method, Mr. Emerson says. "Aerial photographic tax maps," he continues, "permit a study of every square foot of the community in relief or perspective and constitute an understandable and valuable inventory of all physical assets."

Connecticut recently made an aerial photographic map of the whole state, the first state to complete such a map.

Partial Payments on Delinquent Taxes

INSTALMENT payment of delinquent taxes is running into constitutional snags. Two recent decisions—one in Minnesota and the other in Illinois—find that this method of delinquent-tax payment discriminates in favor of the property owner who fails to pay promptly.

The Minnesota decision, handed down by the State Supreme Court, ruled that legislation providing for instalment payments of delinquent taxes violated the uniformity clause in the constitution. The Illinois decision emanated from the Circuit Court, where a Chicago jurist found that "the Legislature has no right to remit taxes and waive penalties, particularly as these revenues are already included in local government budgets." The statute provides that delinquent taxpayers may pay their bills for 1932 and prior years in seven instalments at the interest rate of 6 per cent a year, and penalties accruing up to the time of payment of the first instalment may be canceled. The Illinois decision will be appealed.

Recently there has been much legislation covering the payment of delinquent taxes. The right to pay them in instalments over a period of years has been granted or extended in Arizona, Idaho, Indiana, New Mexico, Oregon, Washington, Maryland, Montana, New Jersey, and Pennsylvania. Oregon allows partial payments in any sum of $2.50 or more and also allows delinquent taxpayers to work out their indebtedness.

Payment of current as opposed to delinquent taxes is considered "a worthwhile procedure" by the editor of *Municipal Finance*, published by the Municipal Finance Officers' Association. In answer to a query on the subject this journal says:

"The practice of paying taxes by monthly instalments is limited only by the practical difficulties involved in its operation. However, we feel much more favorably inclined toward a monthly payment plan. From the standpoint of administration, we believe it to be the best."

St. Louis to Clear 37 Blocks for Jefferson Memorial

AS a result of a special election in St. Louis on September 10, work will soon start on the clearing of 37 blocks of waterfront property for the erection of a $30,000,000 "Jefferson National Expansion Memorial," to be dedicated to Thomas Jefferson and the western development of the nation. The Federal Government is expected to provide $22,500,000 toward the cost of the building, the city providing the $7,500,000 site.

Plans are being drafted for a nation-wide competition for an architectural design for the Memorial, with prizes of $50,000, $25,000 and $10,000.

The proposal for the issuance of $800,000 in bonds for the completion of approaches to the Municipal Bridge was also passed at the September 10 election. The city has been allotted a $300,000 grant by the Public Works Administration for the project, and work will probably start at once.

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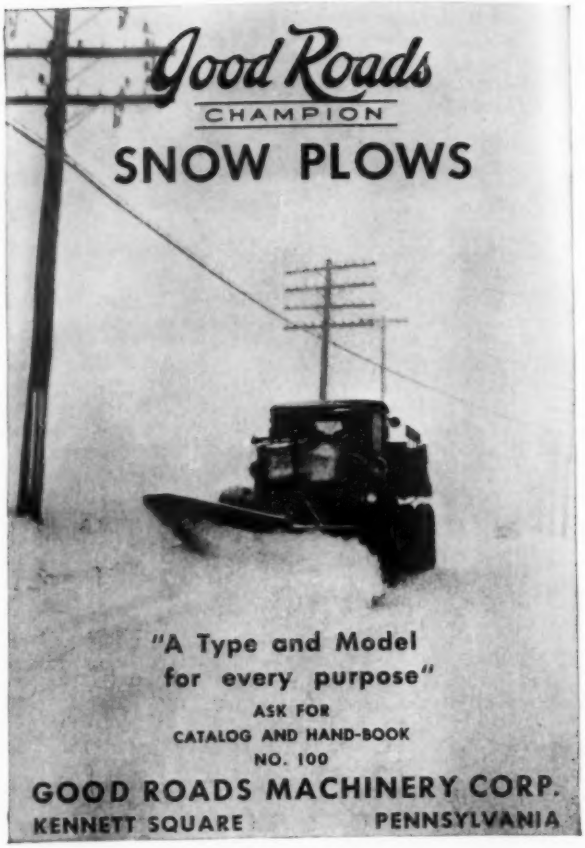

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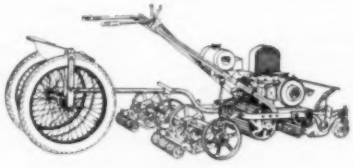

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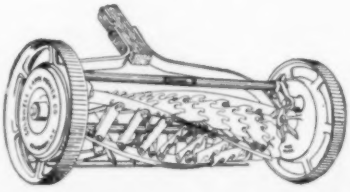

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

ZONING and PLANNING NOTES

From Data collected
by the Zoning Committee
of New York
(233 Broadway)

Non-Conforming Use

KANSAS.—*City of Norton v. Hutson*, 46 Pac. 2d, 630 (Supreme Court, July 6, 1935.)—In 1931, the city of Norton adopted a zoning ordinance, under which a business district was established in which cream-buying stations were forbidden. The ordinance, however, allowed the continuance of non-conforming uses. Hutson was convicted of violating the zoning ordinance by setting up a new cream-buying station in a business district, and appeals on the ground that it is unreasonable to prevent him from operating a new station when existing stations are allowed to continue. This contention the Court overrules, saying:

"The contention is made that the state . . . could not enact a valid statute granting the right to certain citizens to pursue an occupation or business and deny that right to other citizens. . . . Such discrimination is necessary if city zoning is to be undertaken at all—unless all 'non-conforming' structures and uses are to be banned from zones created for the benefit of conforming uses. Such an alternative would ordinarily be too drastic for legislation or judicial countenance, though it has been done in Los Angeles."

In Metzenbaum's book, "The Law of Zoning," the subject is discussed this:

"It is customary for zoning ordinances to provide that a then existing and used structure may continue to be employed for its then purposes, though their location and uses may be at variance with, and not in conformity to, such respective zoning ordinances. Such exceptions are generally referred to and classified as non-conforming uses. Obviously, it would be inequitable and an unnecessary destruction of building values to even attempt to annul or prevent the use of then existing structures. However, it is the common rule for zoning ordinances to provide that such non-conforming uses may not be extended except to a very limited degree, and may not be rebuilt or again be employed in the event of a destruction of a greater percentage of such a building.

"Some ordinances have quite detailed and specific provisions limiting the right of such non-conforming uses. Within a period of another twenty years, a large number of such non-conforming uses will have disappeared, either through the necessity of enlargement and expansion which invariably is forbidden or limited by ordinance, or by the owner's realizing that it is unwise and uneconomic to be located in a district which probably is not suitable for the non-conforming purpose, or by obsolescence, destruction by fire or by the elements, or similar inability to be used; so that many of these non-conforming uses will 'fade out,' with a resulting substantial and definite benefit to all communities."

Boards of Appeals—Mandamus—Certiorari

LOUISIANA.—*State ex rel. Kreher v. Quinlan*, 162 So. 577 (Supreme Court, June 19, 1935).—Board of appeal are given discretionary power to vary the application of zoning ordinances in accordance with their general purpose and intent; and the remedy for any alleged error in their action under this power, provided by statutes, is certiorari. For these two reasons the plaintiff cannot apply for mandamus in this case, but must use certiorari.

Navigable Waters—Water Supply

LOUISIANA.—*City of Shreveport v. Wilkinson*, 162 So. 621 (Supreme Court, July 1, 1935).—Where defendant owned a recreation home on an island in a lake subsequently used by the city for water supply, the enforcement against him of an ordinance prohibiting boats on the lake at night, thus depriving him of access to his home after dark, is unreasonable and unconstitutional.

Board of Appeals—Temporary Permit

NEW YORK.—*Matter of Fox (Kreuter)*, before Mr. Justice Taylor, Westchester County, reported in *New York Law Journal*, August 3, 1935.—A temporary permit, varying the terms of the zoning ordinance, without public hearing and notice, as required by law, is void. Mandamus, therefore, and not certiorari, is the proper remedy against it.

Residential District—Athletic Field

NEW YORK.—*Goetz v. City of Mount Vernon*, Supreme Court, Westchester County, reported in *New York Law Journal*, August 9, 1935.—An athletic field is a park use, and properly admitted into a residential district in which parks and playgrounds are allowed. A park is a tract of land devoted to purposes of ornamentation and recreation. Park purposes include playing grounds and means of recreation, and are not confined to a tract of land with trees, grass and seats. The right of a municipality to grant concessions for race meets, etc., where an admission charge is made has been sustained provided that such use is not so unreasonable as practically to deprive the public of the benefit of the property.

Planning in Illinois

In an appendix to the University of Illinois Bulletin of August 13, 1935, entitled "A Community Planning Primer for Illinois," Karl B. Lohmann, Professor of Landscape Architecture and author of that most useful book, "Principles of City Planning," gives a brief review of Illinois planning laws.

Protection of Industries from Unjust Damage Suits

The Industrial Zoning Committee of the Los Angeles Chamber of Commerce has secured the passage of a bill in the California State Legislature, now Chapter 511, Statutes of 1935, providing that in industrial zone districts no person, firm or corporation shall be enjoined from the reasonable and necessary operation of any use expressly permitted therein, nor shall such use be deemed a nuisance without evidence of the employment of unnecessary and injurious methods of operation.

This committee, in its report to the Legislature, says:

"Unfair and unwarranted attacks have been made upon numerous industries in the state of California with disastrous results. This practice must stop, for our industries are the backbone of California.

"True, our homes must be protected, but an individual who builds himself a home in an area zoned for industry, must not expect the same protection afforded him should he build in a restricted residential area. . . .

"Numerous instances have been brought to our attention where unwarranted nuisance complaints have been brought against industries, properly located in zones expressly permitting them, such complaints being initiated by persons who have built residences nearby after the establishment of the industry and with full knowledge of its existence and of the zoning ordinance permitting such industry. Such unwarranted actions are jeopardizing expansion of industrial development, which is so necessary for the continued prosperity and development of the state of California."

A. E. Williamson, Chairman of the Sub-Committee on Legislation, writes us with relation to this law:

"We realize, of course, that this is not the final solution of the problem. We are going to seek further legislation, i.e., a law to prevent the building of homes in areas zoned for industry. . . ."

EDITOR'S NOTE.—In a few cases, zoning ordinances have forbidden the building of residences in industrial zones. The fear has been expressed by some, however, that where vacant land has been zoned for industrial use, such a restriction, preventing the land from being used for the only purpose for which it is immediately needed, will keep the land vacant for a considerable time, thus causing an economic loss to the owners of this land and the community.

Zoning Round Table in "Planning and Civic Comment"

In the official organ of the new American Planning and Civic Association for April-June, 1935, is a Zoning Round Table, conducted by Edward M. Bassett, in which those interested are invited to participate. The first article deals with blighted districts and billboards.

MUD-JACK METHOD

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3 inch Sunken
Walk Slab

Hazard Eliminated
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Slab Raised to
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Corrects Sunken Sidewalk Slab

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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City held not negligent as to child falling from swing on public playground (New York Court of Appeals: *Peterson v. City of New York*, 196 N. E. 27).

Park district held not liable for drowning of swimmer in pool due to neglect of guard (Washington Supreme Court: *Mola v. Metropolitan Park District of City of Tacoma*, 42 Pac. 2d, 435).

City held liable for negligent treatment of hospital patient and suable separately or with county jointly operating hospital with city (Texas Court of Civil Appeals: *Smith v. City of Dallas*, 78 S. W. 2d, 301).

City held not liable to hospital patient for negligence of student nurse (Texas Court of Civil Appeals: *City of McAllen v. Gartman*, 81 S. W. 2d, 147).

Appointments

Where City Clerk was holding over, Council's refusal to approve Mayor's appointment of successor held not to create such "vacancy" as to empower Council to make appointment itself under charter provision (West Virginia Supreme Court of Appeals: *Broadwater v. Booth*, 180 S. E. 180).

Bond Issues

Bond issue for light and power plant held not vitiated because city officials unduly backed proposal at election, etc., but invalid because proposal submitted was so worded as to be apt to deceive voters (Kansas Supreme Court: *Kansas Electric Power Co. v. City of Eureka*, 45 Pac. 2d, 877).

Statute authorizing use of bond proceeds for improving buildings and "equipment" held not to permit use to buy furniture, tableware, etc. (Missouri Supreme Court: *State v. Smith*, 81 S. W. 2d, 613).

Bond issue to pay back salaries of policemen and firemen held not invalid as preferring one class of creditors (Washington Supreme Court: *Weisfield v. City of Seattle*, 40 Pac. 2d, 149).

Business Regulations

Ordinance requiring pool and billiard rooms to remain closed between 6 P. M. and 7 A. M. held invalid as contravening licenses granted by state (Tennessee Supreme Court: *Craig v. Mayor and Aldermen of Town of Gallatin, Tenn.*, 79 S. W. 2d, 553).

Automobile dealers held not entitled to enjoin ordinance regulating used car sales (Oklahoma Supreme Court: *City of Oklahoma City v. Norton-Johnson Buick Motor Co.*, 36 Pac. 2d, 278).

Food Regulations

Ordinance requiring permit to sell milk upheld (Iowa Supreme Court: *City of Des Moines v. Fowler*, 255 N. W. 880).

Health Measures

Borough ordinance regulating depth of graves held invalid as encroaching upon field of State Department of Health (Pennsylvania Superior Court: *Commonwealth v. Dickey*, 175 Atl. 285).

Borough ordinance requiring permit to keep pigs, limiting the number kept to ten and imposing a $10 license fee, upheld (New Jersey Court of Errors and Appeals: *Wogisch v. Board of Health of Borough of Moonachie*, 176 Atl. 602).

Judgments

Land acquired by city at tax sale and not used for public purposes held subject to levy under judgment against city (Florida Supreme Court: *City of Sanford v. Dofnos Corporation*, 156 So. 142).

Resolution authorizing Police Department to award possession of stolen property found in possession of pawnbroker or junk dealer and providing for revocation of his license on refusing to comply with award, upheld (California District Court of Appeal: *Willer v. Quinn*, 41 Pac. 2d, 572).

Liquor Regulations

Ordinance forbidding sale of beer, etc., within 300 feet of public schools upheld (Virginia Supreme Court of Appeals: *Repass v. Town of Richlands*, 178 S. E. 3).

As applied to liquor sales, ordinance forbidding sale of personal property on Sunday held not abrogated by state liquor control act (Washington Supreme Court: *Paris v. Smith*, 36 Pac. 2d, 314).

Ordinance forbidding purchase of liquor held void so far as making possession prima facie evidence of purchase (Georgia Court of Appeals: *Stafford v. City of Valdosta*, 174 S. E. 810).

Markets

Lessee of stall in city market, to continue so long as rent should be paid and regulations should be complied with, held tenant at will, the lease being terminable any time by him or the city (Texas Supreme Court: *Holcombe v. Lorino*, 79 S. W. 2d, 307).

Municipal Utilities

Water consumer held not entitled to refund from town on theory of overcharge (Massachusetts Supreme Judicial Court: *Lefebvre v. Town of Pembroke*, 194 N. E. 698).

Power company held not entitled to enjoin construction of municipal plant under Federal aid project (United States District Court, Western Division of Western District of Missouri: *Missouri Utilities Co. v. City of California, Mo.*, 8 Fed. Supp. 454). But see *Missouri Public Service Co. v. City of Concordia*, 8 Fed. Supp. 1, where the Central Division held that electric company stated good ground for relief in similar case on theory that Federal aid of intrastate activity is invalid.

City held not empowered to compel electric company to relocate conduit in street to permit sanitary district to construct intercepting sewer (Illinois Supreme Court: *Sanitary District of Chicago v. Commonwealth Edison Co.*, 192 N. E. 248).

Taxation

10 per cent tax on electric current sales held invalid under charter provision as direct tax on gross income of power company (Florida Supreme Court: *City of De Land v. Florida Public Service Co.*, 161 So. 735). Similar decision as to five per cent tax against gas and telephone service (same court and same parties, 161 So. 740).

Statutory authority of State Tax Commission to reduce municipal tax levies upheld (Indiana Supreme Court: *Dunn v. City of Indianapolis*, 196 N. E. 528).

Warrants

City held entitled to provide for registration of unpaid warrants and for payment in order of registration, with interest (California Supreme Court: *Voorhees v. Morse*, 34 Pac. 2d, 153).

Water Supply

City's agreement to furnish free water to landowners whose wells became useless through seepage from city's water basin upheld (Alabama Supreme Court: *City of Roanoke v. Johnson*, 158 So. 182).

City held empowered to supply surplus water to consumers outside city but not to provide facilities therefor (Kentucky Court of Appeals: *Smith v. City of Raceland*, 80 S. W. 2d, 827).

Construction of reservoir held "operating expense," and bonds therefor were properly made payable out of income of water system (Arkansas Supreme Court: *Bourland v. City of Ft. Smith*, 78 S. W. 2d, 383).

Claim for overflow of land caused by municipal dam held barred by failure to give notice thereof within 90 days after first injury (North Carolina Supreme Court: *Wallace v. City of Asheville*, 179 S. E. 18).

Workmen's Compensation

Night marshal held not covered by Workmen's Compensation Act as being "employee" (Iowa Supreme Court: *Roberts v. City of Colfax*, 260 N. W. 57). See, also, Indiana decision, 196 N. E. 336.

Laundry worker in hospital held municipal "employee" within Act (Georgia Court of Appeals: *City Council of Augusta v. Butler*, 179 S. E. 149).

For additional statements of legal decisions, see page 97.

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The Littleford No. 84-HD Tar and Asphalt Heating Kettle is used by cities all over the country. When equipped with Hand Spray Attachment as shown here, it is an ideal low-cost maintenance unit.

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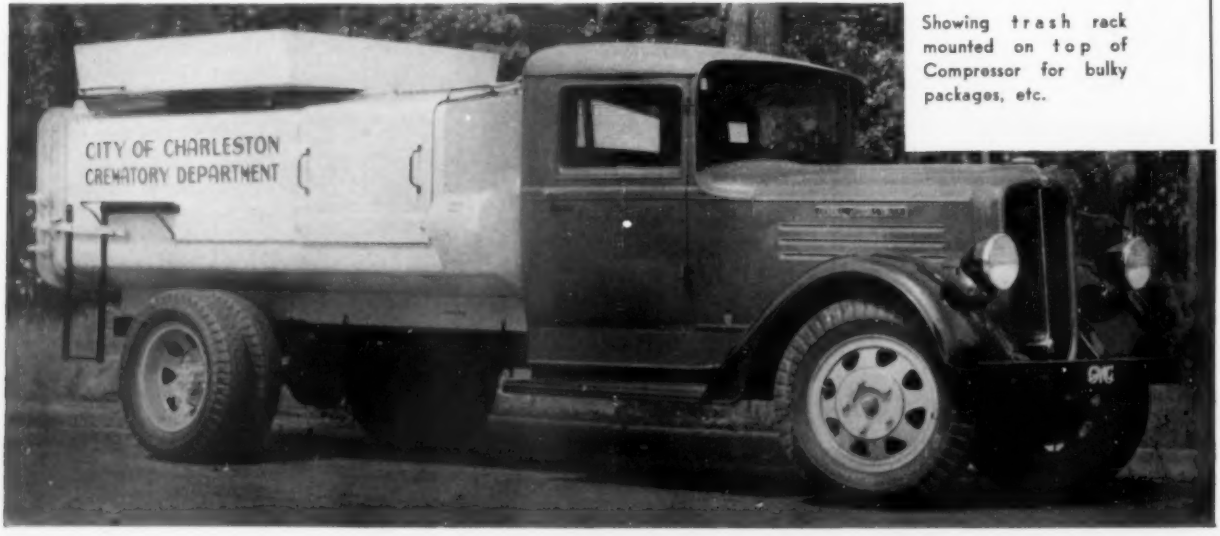

Showing trash rack mounted on top of Compressor for bulky packages, etc.

Civil Service

Board rule barring from examination for policeman's position those not having twelfth grade school certificate or its equivalent held not warranted by charter power to make examination rules (California District Court of Appeals: *Bruce v. Civil Service Board, Oakland*, 45 Pac. 2d, 419).

Order forbidding firemen to be members of outside labor union under pain of suspension, dismissal, etc., upheld (Virginia Supreme Court of Appeals: *Carter v. Thompson, City Manager of Norfolk*, 180 S. E. 410).

Debt Limits

Sewage disposal bonds held issued for a "public utility" within constitutional debt limitation exemption (Wisconsin Supreme Court: *Payne v. City of Racine*, 259 N. W. 437).

Franchises

Taxpayer held not to show right to compel revocation of bus franchises (New York Supreme Court, New York County: *Greenberg v. City of New York*, 274 N. Y. Supp. 4).

Licenses

Ordinance imposing $200 annual license fee for each vehicle used in peddling to dealers held valid although exempting farmers, etc. (Virginia Supreme Court of Appeals: *H. L. Carpel of Richmond v. City of Richmond*, 175 S. E. 316).

Peddlers' license tax held invalid as unreasonably discriminating against nonresidents (Michigan Supreme Court: *Cook Coffee Co. v. Village of Flushing*, 255 N. W. 177).

Ordinance fixing penalty for unlicensed sale of intoxicating liquor held invalid as exceeding statutory authority; conviction thereunder not validated by imposing penalty within statute (Louisiana Supreme Court: *Town of Waterproof v. Towles*, 156 So. 211).

Ordinance forbidding distribution of printed matter from house to house by non-residents without paying $1 per day for permit held invalid as unjustly discriminating (New Jersey Supreme Court: *Town of Nutley v. Brandt*, 174 Atl. 244).

Warrant charging lecturing without a license held insufficient for failing to particularize how ordinance was violated (Florida Supreme Court: *State v. McCreary*, 156 So. 257).

Fifty dollars annual license fee against telephone company claiming net operating loss held not invalid (Georgia Supreme Court: *Central Telephone Co. v. City of Nashville*, 175 S. E. 539).

Town Council held not to have abused discretion in refusing to issue a license to sell beer (Iowa Supreme Court: *Madsen v. Town of Oakland*, 257 N. W. 549),

$100 license tax against wholesale gasoline dealers upheld (Alabama Court of Appeals: *Sinclair Refining Co. v. City*

Official Misfeasance

Conviction of City Commissioners for unlawfully lending city's credit held warranted by evidence, but reversed for error in instruction to jury (New Jersey Supreme Court: *State v. Headley*, 174 Atl. 572).

MUNICIPAL AND CIVIC PUBLICATIONS

Prices quoted do not include postage, unless so stated

Public Health

Public Health Administration in the United States.—By Wilson G. Smillie, A.B., M.D., Dr.P.H., Professor of Public Health Administration, School of Public Health, Harvard University. The Macmillan Company, New York. 1935. XVI + 458 pp. Illustrated. $3.50 from THE AMERICAN CITY.

With full recognition of the difficulties and dangers involved in compiling a textbook in the field of public health administration—for use in a vast country of great variation in history and characteristics and in ways of thinking, and of constantly changing principles in the application of new scientific knowledge, the author presents public health administrative methods that have been successfully applied by competent, experienced individuals. The framework of the compilation is built up in relation to the functions of the various units of government in the United States in creating a correlated, unified plan of health protection; and with consideration of the work of voluntary agencies and professional groups. After the introductory discussion of the functions of a health organization, and the development of public health administration in the United States, the material is presented in three important divisions: Administrative Control of Communicable Diseases; Basic Activities of a Health Organization; and Organization of Public Health Programs. Special attention is directed to the chapter on Budgets and Budget Making.

Highways

The Highway Research Board has issued, in its Information Service, a Progress Report of the Project Committee on Stabilized Soil Road Surfaces, subject to correction and modification on consideration by the Board, but useful during the present work season. It includes: General Theory of Soil Stabilization; Design Essentials of Stable Soil Mixtures; Typical Soil Mixtures; and the Report of the Subcommittee on Treatment with Calcium Chloride. 38 pp. Illustrated. (Apply to Division of Engineering and Industrial Research, National Research Council, 2101 Constitution Ave., Washington, D. C.)

Modern Accounting

"Modernized Tax Accounting in Cuyahoga County, Ohio," tells how Auditor John A. Zangerle installed a million cards in place of 225 books. "This card installation," says the report, "will be extremely far-reaching in the multiple benefits it will bring in future special accounting operations. In the complete installations, under which municipal assessments are included along with county assessments in a unified accounting plan, the same benefits previously cited as to county specials will extend to municipals. . . . The future charge and the period of years the assessments are to run, are an open book of great value to owners, realtors, merchants and the public. A careful examination shows that municipalities will be able to save approximately $50,000 annually under the revised method. That figure is based on last year's cost to municipalities for accounting for special assessments under the former method." 24 pp. (Apply to Clark L. Simpson, Room 17, Courthouse, Cleveland, Ohio.)

Government and Administration

The "Minnesota Year Book" for 1935, published by the League of Minnesota Municipalities, presents in concise tabulation statistics of state and local government and administration, under the following divisions: Local Government; Taxation and Finance; Exempt Property; Tax Delinquency; Indebtedness; Public Utilities; also directories of state, county, city and village officials, and population statistics for cities, villages and counties for 1920 and 1930. The public utility information includes rate data for municipalities generating and distributing electric current, for municipalities distributing electric current purchased wholesale, and for public utility companies serving muncipalities; also water rates; municipal and institutional water treatment plants; municipal sewage treatment plants; larger institutional sewage treatment plants; gas rate data; and central heating rate data. 330 pp. Charts, tables, photographs. Boards. (Apply to the League, 15 University Library, Minneapolis, Minn.)

Politics

Negro Politicians: The Rise of Negro Politics in Chicago.—By Harold F. Gosnell, Associate Professor of Political Science, University of Chicago; with an Introduction by Robert E. Park.—The University of Chicago Press, Chicago. 1935. Number XXXII, Social Science Studies directed by the Social Science Research Committee of the University. XXXI + 404 pp. Illustrated. $3.50 from THE AMERICAN CITY.

This volume is the result of five years of personal investigation by the author in attending political meetings of different parties, observing the activities of party headquarters, gambling houses, elections, courts, various gatherings; interviewing outstanding individuals and many others of less prominence but great importance in gaining an understanding of the political methods by which the group has sought to advance its status. It is authentic and absorbingly interesting, written in a convincing and enlivening style.

Highway Specifications

Standard Specifications for Highway Materials and Methods of Sampling and Testing Adopted by the American Association of State Highway Officials. Published by the Association. 1220 National Press Building, Washington, D. C. 1935. 330 pp. Illustrated. Cloth-bound. $2.00.

Recently revised and enlarged, this book is presented as the guide for all those who furnish and use road-building materials required by Federal and state highway authorities.

Public Health Service

A list of Public Health Service publications during January-June, 1935, which are available for free distribution, from the Surgeon General, U. S. Public Health Service, Washington, D. C., or for purchase, at stated prices, from the Superintendent of Documents, Government Printing Office, Washington, D. C., may be secured by addressing the Public Health Service.

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To Control Parking
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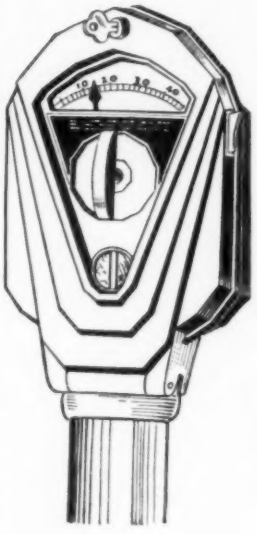

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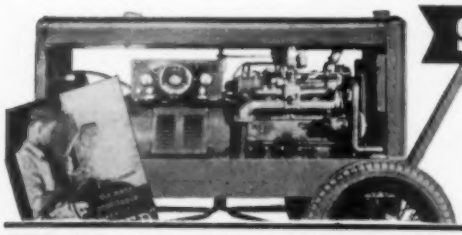

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on any kind of municipal equipment or supplies? See pages 21 and 22 for a list of valuable booklets to be had for the asking.

Highways

The Joint Committee on Grade Crossing Protection of the Association of American Railroads has published "Standards and Recommended Practice for Railroad Highway Grade Crossing Protection." This is Bulletin No. 2, superseding Bulletin No. 1. July, 1935. It embodies changes and revisions brought about in great part by the constructive suggestions and recommendations of the executives and engineers of the various state regulatory bodies, as well as by the Committee's realization that present-day practices and conditions indicate that certain alterations are essential. 21 pp. (Apply to Joint Committee of the Association, Transportation Bldg., Washington, D. C.)

Public Schools

A Survey Report of the Cincinnati Public Schools has been made by the United States Office of Education at the request of the Cincinnati Board of Education and the Cincinnati Bureau of Governmental Research, and published by the Bureau in July, 1935, as its Report No. 64. It is an elaborate, comprehensive study, whose scope is indicated by the list of its chapters: Recommendations Requiring Board Action; The City of Cincinnati and Its Educational Problems; The Purposes of the School; Education at the Elementary Level; Education at the Secondary Level; Vocational Education and Industrial Arts; The Education of Exceptional Children; Adult Education; Pupil Achievement and Adjustment; Teacher Personnel Problems; Salaries and the Salary Schedule; The Board of Education; Organization of the Superintendent's Office; Improvement of Instruction; Health and Physical Education; Counseling and Guidance; School Library Service; Research Service; Pupil Accounting and the School Census; Community Relations; The School Plant; Administration of Business Affairs; Financing the School Program. Appendices: Trends of School Population and Enrollment; Expenditure and Cost Data Available in Board of Education Office. XXVII + 476 pp. (Apply to Cincinnati Bureau of Governmental Research, Cincinnati, Ohio.)

Sewerage

The Bureau of Sanitary Engineering, Division of Public Health, of the Indiana State Department of Commerce and Industry has issued the third edition of its Bulletin No. 5 on "Factors Involved in Stream Sanitation." 1935. 23 pp. It points out some of the normal uses of streams and indicates the effects of stream pollution upon these uses; explains the sanitary survey, the methods whereby the condition of a stream is determined; and states the means which may be employed to remedy or prevent this pollution of streams. (Apply to the Bureau, Indianapolis, Ind.)

Municipal Officials

In August, 1935, the North Carolina League of Municipalities issued its Report No. 12, giving "A Roster of North Carolina Municipal Officials," compiled from about 300 responses to requests sent out to nearly 400 municipalities, and from newspaper reports in the instances where no replies were received. Free to member cities and towns, and to the municipalities furnishing lists of officials whether members or not; $2.00 to nonmembers. (Apply to Patrick Healy, Jr., Exec. Sec. of the League, Capital Club Bldg., Raleigh, N. C.)

Boys in Street Trades

The Annual Report of the Street Trades Department of the Extension Department of the Milwaukee Public Schools for the year ending July 1, 1935, is an exceedingly interesting presentation of the work that is being done to equip young street traders, particularly newsboys, to adjust their street trade work with their school work. The boys are licensed under the Wisconsin Street Trades Law and are citizens of the Newsboys' Republic of Milwaukee and members of the Newsboys' Clubs of their respective schools. These organizations stand for satisfactory school work; clean personal habits; service to employers and customer; service to the community. This report gives a full account of the regulation of the street trades, the organization through school clubs and advisors, the results of the licensing; the conduct of the Newsboys' Republic Service, the contests in various recreational activities; and the service program. 48 mimeographed pp. Tables, graphs. (Apply to Street Trades Department, Public Schools, Milwaukee, Wis.)

Municipal Bonds

A bulletin entitled "Marketing Municipal Bonds" has been issued recently by the Municipal Finance Officers' Association, 850 E. 58th St., Chicago, Ill., as a practical guide for local officials, showing the steps to be followed if a municipality is to obtain the best price possible for its bonds. 8 photo offset pp. Single copies, 20c; quantity discounts on lots of 25 or more. (Apply to the Association.)

Housing

"A Housing Program for the United States" is a report prepared for the National Association of Housing Officials (Publication No. 48) and published in September by Public Administration Service. It contains the full report, largely drafted by Sir Raymond Unwin, of the recommendations and arguments made by a group of outstanding European and American housing experts after a survey of housing conditions in 14 American cities. A summary of the report was presented to a distinguished group of leaders in the housing movement in a conference at Baltimore, revised in the light of their discussion, and issued as a pamphlet some months ago. The present report, 46 quarto pages, has been issued in response to many requests. 50c. (Apply to Public Administration Service, 850 E. 58th St., New York.)

Legal Aid

A manual of practice entitled "Legal Aid Bureaus: Their Organization and Administration" has been prepared by John S. Bradway, LL.B., Secretary, National Association of Legal Aid Organizations, and published by the Public Administration Service as Publication No. 47, 88 pp. It contains the experience of many societies in many cities: the actual operation of a legal aid bureau; personnel and financing; bringing the service before the public; practice and policies that have been worked to overcome difficulties in operation. This is stated to be the first practical description of legal aid work. $1.00. (Apply to Public Administration Service, 850 E. 58th St., Chicago, Ill.)

Local Government

A year and a month of travel, beginning in February, 1933, forms the basis of "Westward to the East: The Record of a World Tour in Search of Local Government," by George Montagu Harris, O.B.E., M.A., M.T.P.I., of the Middle Temple, Barrister-at-Law; author of "Problems of Local Government," "Local Governm nt in Many Lands," "The Garden City Movement." Arrangements for the portion of the tour in the United States, with lectures, were made by the American Municipal Association, and the Local Self-Government Institute of Bombay made similar arrangements for India. The book is published by the International Union of Local Authorities, the organization directly represented by the author. It presents keen observations in a very enlivening way, briefly analyzing local governmental and social conditions in many cities, and characterizing individuals connected with public affairs. IX + 254 pp. (Apply to International Union of Local Authorities, 3bis, rue de la Régence, Brussels, Belgium; or 190, Palace Chambers, Bridge St., Westminster, London, S.W.1, England.)

"Local Government and Administration in Louisiana" is a comprehensive, detailed study by R. L. Carleton, Ph.D., Assistant Professor of Government, Louisiana State University. The author states the purposes of the study as follows: "The first is to determine the effect on local institutions of the varied historical background of Louisiana. In the second place, local government and administration is described as it exists in Louisiana today. Finally, by means of analyses and comparisons, local institutional defects and deficiencies are noted, with suggestions for their improvement." The chapter on Taxation and Finance and the concluding chapter are of particularly wide interest. The book is edited by Charles W. Pipkin, Ph.D., LL.D., Dean of the Graduate School and Professor of Comparative Government in the University. Paper-bound, 333 pp. (Apply to the Louisiana State University Press, Baton Rouge, La.)

Housing

An appalling pictorial record of the poorer housing areas in Iowa's cities is presented in a bulletin of 54 photo offset pages issued by the Iowa State Planning Board under the title "The Forgotten House." Illuminating text accompanies the photographs, and a constructive purpose is emphasized by pictures and comment showing recent low-cost housing developments by the Federal Government. The Iowa State Planning Board's reports on housing for a number of Iowa's larger cities contain practically all the general information needed for preliminary applications to the several Federal agencies engaged in the problem of providing low-cost housing. (Apply to A. H. Wieters, Secretary of the Board, Des Moines, Iowa.)

Other Reports Received

BELFAST, MAINE.—"Municipal Activities, 1934-1935." 62 pp.

CHICAGO, ILL.—Annual Report, Comptroller, 1934. 166 pp.; boards. (Send 15c in stamps to Municipal Reference Library, City Hall.)

CHICAGO, ILL.—Annual Report, Retirement Board, Policemen's Annuity and Benefit Fund, 1934.

DALLAS, TEXAS.—General Budget for fiscal year ending September 30, 1936, submitted by City Manager. 208 mimeographed pp.

EAST ORANGE, N. J.—Annual Report, Board of Health, 1934. 79 pp.

ESSEX COUNTY, N. J.—County Park Commission Report for 1932-1933-1934. 50 pp.

MICHIGAN.—"Michigan City and Village Debt." July, 1935. 24 pp. $1.00. (Apply to the Michigan Municipal League, Ann Arbor, Mich.)

NEBRASKA.—"Nebraska Voters' Handbook." July, 1935. 52 pp. (Apply to Nebraska Legislative Reference Bureau, Lincoln, Nebr.)

NEW JERSEY.—Proceedings, Annual Meeting, New Jersey Mosquito Extermination Association, March 6-8, 1935. 189 pp. (Apply to Thomas J. Headlee, Sec. of the Assn., Dayton, N. J.)

NEW YORK CITY.—"Art in New York: A Guide to Things Worth Seeing," by Florence N. Levy. Published by The Municipal Art Society, 119 E. 19th St., New York. 134 pp. Illustrated. 30c postpaid.

NEW YORK CITY.—"What Some Slum Dwellers Want in Housing." One of a series of neighborhood studies made by the Henry Street Settlement under the direction of Duane V. Ramsey. 12 photo offset pp. (Address Miss Helen Hall, 265 Henry Street, New York.)

NEW YORK STATE.—Annual Report, State Department of Health, 1934. 262 pp.

NEW YORK STATE.—"Municipal Problems": Proceedings, Annual Meeting, Conference of Mayors and Other Municipal Officials of the State of New York, June 3-5, 1935. 106 pp. (Apply to William P. Capes, Exec. Sec. of the Conference, Albany, N. Y.)

NEW YORK STATE.—"The Scope for Uniformity in State Tax Systems," by Richard A. Girard, Ph.D. Special Report (No. 8) of the State Tax Commission. August, 1935. 229 pp.

PORT ARTHUR, TEXAS.—Semi-Annual Report of City, June 30, 1935. 7 mimeographed sheets.

TENNESSEE.—"Non-Urban Outdoor Recreation: An Analysis of its Functions, Forms, and Types of Areas." A report of the Recreation and Conservation Section, Division of Land Planning and Housing, Tennessee Valley Authority, July, 1935. 19 mimeographed pp.

"Is Industry Decentralizing? — A Statistical Analysis of Locational Changes in Manufacturing Employment, 1899-1933," by Daniel B. Creamer; with a preface by Carter Goodrich. 105 pp. $1.00. See page 89 of this issue. (Apply to University of Pennsylvania Press, Philadelphia, Pa.)

Proceedings, Eastern State Regional Conference, Civil Service Assembly of the United States and Canada, April 12-13, 1935. A summary. 75 mimeographed pp. (Apply to the Sec.-Treas. of the Conference, Miss Mildred Medinger, Personnel Examiner, Department of State Employment and Registration, Baltimore, Md.)

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Where a product is manufactured is where service on that product primarily begins. That is why you should not only consider the Pomona Pump, but also the Pomona organization. Pomona Turbine Pumps are noted for their ability in lifting maximum quantities of water. The Pomona organization is likewise noted for the reliable, experienced service that it renders. Together, these features assure "owner satisfaction"—which means repeat business.

Pomona Pumps embody the latest developments in design and are built for economical, efficient operation. To assure this operation, to keep replacements and maintenance at rock bottom cost, every Pomona Pump part is the best available.

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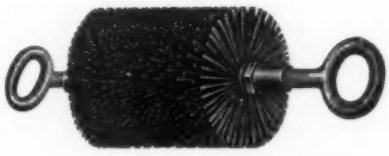

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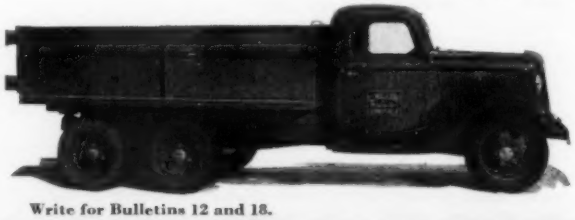
Wood L-10 rubbish body with F-4 hydraulic hoist, 4½ cu. yd. capacity with 2 cu. yd. hinged extension sides; watertight construction and barndoor type tailgate.



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CONVENTIONS—WHEN AND WHERE

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

OCTOBER 7-8.—GREENSBORO, N. C.
North Carolina League of Municipalities. Annual convention. Secretary, Patrick Healy, Jr., Capital Club Building, Raleigh, N. C.

OCTOBER 9-10.—PRATT, KANS.
Kansas Association of Municipal Utilities. Annual convention. Secretary-Treasurer, L. C. Angevine, Water and Electric Department, McPherson, Kans.

OCTOBER 9-11.—COLUMBUS, NEBR.
League of Nebraska Municipalities. Annual meeting. Secretary-Treasurer, C. E. Beals, 204 Brownell Building, Lincoln, Nebr.

OCTOBER 9-10.—LA CROSSE, WIS.
Wisconsin Chiefs of Police Association. Annual meeting. Secretary, R. H. McCarty, Kaukauna, Wis.

OCTOBER 14-16.—CINCINNATI, OHIO.
Joint conference. American Society of Municipal Engineers. International Association of Public Works Officials. Executive Director, Donald C. Stone, 850 East 58th Street, Chicago, Ill.

OCTOBER 14-17.—HOUSTON, TEXAS.
American Water Works Association—Southwest Section. Annual convention. Secretary-Treasurer, Lewis A. Quigley, Fort Worth, Texas.

OCTOBER 14-16.—RICHMOND, VA.
International Association of Municipal Electricians. Annual convention. Secretary, W. H. Harth, Columbia, S. C.

OCTOBER 14-16.—WICHITA, KANS.
League of Kansas Municipalities. Annual convention. Executive Secretary, John G. Stutz, Lawrence, Kans.

OCTOBER 14-18.—LOUISVILLE, KY.
National Safety Council. Annual Safety Congress and Exposition. Managing Director, W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

OCTOBER 14-18.—OKLAHOMA CITY, OKLA. (500)
National Tax Association. Annual conference. Secretary, W. C. Query, South Carolina Tax Commission, Columbia, S. C.

OCTOBER 15-16.—LOUISVILLE, KY.
Institute of Traffic Engineers. Annual meeting. Secretary-Treasurer, Hawley S. Simpson, 175 Fifth Avenue, New York.

OCTOBER 15-18.—SAN ANTONIO, TEXAS.
National Association of Public School Business Officials. Annual convention. Secretary, H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 16-19.—WHITE SULPHUR SPRINGS, W. VA.
American Institute of Steel Construction, Inc. Annual convention. Executive Director, Charles F. Abbott, 200 Madison Avenue, New York.

OCTOBER 16-18.—BIRMINGHAM, ALA.
American Society of Civil Engineers. Annual convention. Secretary, George T. Seabury, 33 West 39th Street, New York.

OCTOBER 16-18—WASHINGTON, D. C.
Joint National Conference on Housing. (Washington Hotel.) Address: Coleman Woodbury, 850 East 58th Street, Chicago, Ill. (See box on this page.)

OCTOBER 16-18.—ATLANTIC CITY, N. J.
Pennsylvania Water Works Association. Annual meeting. Secretary, Dr. F. Herbert Snow, 327 Telegraph Building, Harrisburg, Pa.

OCTOBER 16-18.—WACO, TEXAS.
Texas Public Health Association. Annual convention. Secretary, Lewis Bracy, State Board of Health, Austin, Texas.

OCTOBER 17-18.—ROCHESTER, N. Y.
American Water Works Association—New York Section. Fall meeting. (Powers Hotel.) Secretary, R. K. Blanchard, care Neptune Meter Co., 50 East 42d Street, New York.

OCTOBER 18-19.—ST. PAUL, MINN.
American Water Works Association—Minnesota Section. Annual meeting. Secretary-Treasurer, Ronald M. Finch, Wallace & Tiernan Co., Inc., 414 Flour Exchange, Minneapolis, Minn.

OCTOBER 20-23.—WASHINGTON, D. C.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, R. H. Goddard, Worcester, Mass.

OCTOBER 21-23.—KNOXVILLE, TENN.
American Municipal Association. Annual meeting. Executive Secretary, Paul V. Betters, 850 East 58th Street, Chicago, Ill.

OCTOBER 21-23.—KNOXVILLE, TENN.
International City Managers' Association. Annual convention. Executive Director, Clarence E. Ridley, 850 East 58th Street, Chicago, Ill.

OCTOBER 21-23.—KNOXVILLE, TENN.
Municipal Finance Officers' Association of the United States and Canada. Annual convention. Executive Director, Carl H. Chatters, 850 East 58th Street, Chicago, Ill.

OCTOBER 21-23.—KNOXVILLE, TENN.
National Association of Tax Assessing Officers. Annual convention. Secretary-Treasurer, Miss Matylda A. Zurowska, City Assessor, Scranton, Pa.

OCTOBER 23-26.—SAN DIEGO, CALIF.
American Water Works Association—California Section. Annual convention. Secretary-Treasurer, J. E. Phillips, 207 South Broadway, Los Angeles, Calif.

OCTOBER 24-26.—SAN ANTONIO, TEXAS.
County Judges and Commissioners of Texas. Annual convention. Secretary, Ben Brooks, Kauffman, Texas.

OCTOBER 25-26.—URBANA-CHAMPAIGN, ILL.
Central States Sewage Works Association. Annual meeting. (Urbana Lincoln Hotel.) Secretary-Treasurer, G. H. Radebaugh, Urbana-Champaign, Ill.

OCTOBER 28-NOVEMBER 1.—ATLANTA, GA.
American Prison Association. Annual congress. General Secretary, E. R. Cass, 135 East 15th Street, New York.

OCTOBER 31-NOVEMBER 2.—AMES, IOWA.
Iowa Sewage Treatment Conference. Secretary-Treasurer, Lindon J. Murphy, Iowa State College, Ames, Iowa.

NOVEMBER 4-6.—DURHAM, N. C.
Joint convention. American Water Works Association—North Carolina Section. North Carolina Sewage Works Association. Secretary, M. F. Trice, State Board of Health, Raleigh, N. C.

NOVEMBER 4-6.—SHEBOYGAN, WIS.
American Water Works Association—Wisconsin Section. Annual convention. Secretary, L. A. Smith, City Hall, Madison, Wis.

NOVEMBER 6-8.—DES MOINES, IOWA.
American Water Works Association—Missouri Valley Section. Annual meeting. Secretary, Earl L. Waterman, University of Iowa, Iowa City, Iowa.

NOVEMBER 7-8.—ROANOKE, VA.
American Water Works Association—Virginia Section. Annual conference. Secretary, H. W. Snidow, 601 State Office Building, Richmond, Va.

NOVEMBER 11.—BOSTON, MASS.
National Pedestrians' Association. Annual convention. Executive Secretary, M. S. Smith, 1468 Broad Street, Providence, R. I.

NOVEMBER 12.—BOSTON, MASS.
International Institute of Transport. Annual convention. President, Charles Davis, 1468 Broad Street, Providence, R. I.

NOVEMBER 13.—BOSTON, MASS.
National Highway Traffic Association. Annual convention. Executive Director, Arthur H. Blanchard, 1438 Broad Street, Providence, R. I.

NOVEMBER 14-15.—ASBURY PARK, N. J.
New Jersey State League of Municipalities. Annual convention. Executive Secretary, S. S. Kenworthy, Trenton Trust Building, Trenton, N. J.

NOVEMBER 15-16.—ASBURY PARK, N. J.
New Jersey Health and Sanitary Association. Annual meeting. (Berkeley-Carteret Hotel.) Secretary, Dr. Edward Guion, Box 418, Atlantic City, N. J.

NOVEMBER 18-19.—TULSA, OKLA. (450)
Oklahoma Municipal League. Annual convention. Secretary, Frank C. Higginbotham, Norman, Okla.

NOVEMBER 20-22.—EDMONTON, ALTA.
Alberta Association of Municipal Districts. Annual convention. Secretary, E. Pinchbeck, Spruce Grove, Alta.

NOVEMBER 25-26.—PROVIDENCE, R. I.
National Association of Civic Secretaries. Annual convention. Secretary, Miss H. Marie Dermitt, Hotel William Penn, Pittsburgh, Pa.

NOVEMBER 25-26—PROVIDENCE, R. I.
National Municipal League. Annual conference on government. Secretary, Howard P. Jones, 309 East 34th Street, New York.

NOVEMBER 25.—PROVIDENCE, R. I.
Proportional Representation League. Annual meeting. Executive Secretary, George H. Hallett, Jr., 309 East 34th Street, New York.

DECEMBER 3-5.—WINNIPEG, MAN.
Union of Manitoba Municipalities. Annual convention. Secretary, John Spaulding, Miniota, Man.

DECEMBER 5-6.—WASHINGTON, D. C.
Highway Research Board of the National Research Council. Annual meeting. Director, Roy W. Crum, 2101 Constitution Avenue, Washington, D. C.

DECEMBER 9-12.—MIAMI, FLA.
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1220 National Press Building, Washington, D. C.

JANUARY 9-11.—WASHINGTON, D. C.
American Engineering Council. Annual meeting. Executive Secretary, Frederick M. Feiker, 744 Jackson Place, Washington, D. C.

JANUARY 20-24.—CLEVELAND, OHIO.
American Road Builders' Association. Annual Road Show. Engineer-Director, Charles M. Upham, 938 National Press Building, Washington, D. C.

JANUARY 20-24.—LAFAYETTE, IND.
Purdue Road School. Annual School. Address: Prof. Ben H. Petty, Engineering Extension Department, Purdue University, Lafayette, Ind.

JANUARY 27-31.—CHICAGO, ILL.
American Society of Heating and Ventilating Engineers. Annual meeting. (Palmer House.) Secretary, A. V. Hutchinson, 51 Madison Avenue, New York.

JANUARY 28-31.—NEW YORK.
American Institute of Electrical Engineers. Annual winter convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

JUNE 8-12.—LOS ANGELES, CALIF.
American Water Works Association. Annual convention. (Hotel Biltmore.) Secretary, Beekman C. Little, 29 West 39th Street, New York.

Housing Conference Program

On invitation from the National Association of Housing Officials a Joint National Conference on Housing will be held at the Hotel Washington, Washington, D. C., October 16-18.

Subjects planned for the main sessions are:

Wednesday, October 16
- Morning—Slum Reclamation
- Afternoon—Field Trips
- Evening—Planning and Location of Low-Cost Housing

Thursday, October 17
- Morning—Types of Dwelling and Site Planning
- Afternoon—Field Trips
- Evening—Acquisition of Property

Friday, October 18
- Morning—Financing of Low-Rent Housing and Slum Reclamation
- Afternoon—The Service of the Federal Government to Home Owners and Tenants

Interested persons, as well as representatives of public and private agencies, are invited to attend.

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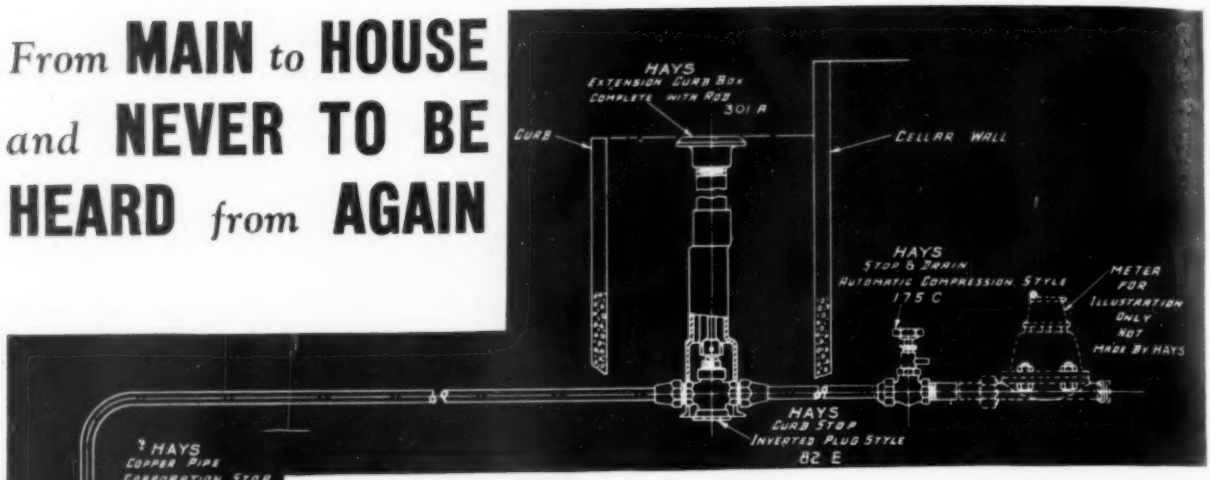

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NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Old-Fashioned Road Show to Be Held by A. R. B. A.

The American Road Builders' Association will hold an "Old-Fashioned" Road Show in conjunction with its annual convention next January 20-24, in Cleveland, Ohio. The decision was reached by the Board of Directors of the Association after a poll conducted by the Joint Convention and Exhibit Committee showed that manufacturers and producers of highway equipment and materials were overwhelmingly in favor of resuming the Road Show.

The availability of Cleveland's new Exhibition Hall, in addition to the city's convenient location, swung the choice of the convention city to Cleveland. The new exhibit area, in one building, is 461 feet long and 365 feet wide. Floor loading is unlimited, and overhead clearance varies from 18 to 28 feet.

Officials of the A.R.B.A. announced that the convention will cover all major phases of the highway industry and profession, as well as presenting a Road Show where an opportunity will be given to highway officials, engineers and contractors to see the great advances in the technical phases of equipment and materials since 1933, the date of the last Road Show.

A New Rear Loading Body for Garbage-Ash Trucks

An improved Colecto rear loading body has been announced by the Municipal Sanitation Corporation, Bridgeport, Conn. Its appearance is in keeping with the aero-dynamic design of motor vehicles.

The chain or cable formerly used to raise the loading bucket in dumping into the body has been eliminated, with its mechanical and moving parts. The body is of welded, hot-riveted construction and, owing to the absence of sheaves, sprockets, chains, cables, driving shafts, etc., it is considerably lightened, permitting a greater pay load. The loading bucket at the rear is now raised by the direct thrust of a hydraulic underbody hoist. The same hoist will also raise the body to a 50-degree angle for dumping the load.

One control lever placed at the side of the body allows the loader on the street to raise and lower the loading bucket and also to dump the body load at the point of final disposal. Other features include the ability to raise the tailgate when dumping; also, a special rubber is inserted in the rear of the body to form a gasket, insuring a watertight body and tailgate. This type body will be manufactured in two capacities, 6 and 8 cubic yards.

Sewage Screenings Cut Up in Channel Under Flow

The disposal of screenings at a sewage treatment plant is a disagreeable task to most operators. These screenings are foul-smelling and must be burned or buried promptly to prevent rapid putrefaction and the production of odors. As a means of eliminating screenings entirely from the disposal problem, the Comminutor has been developed. This unit cuts up the screenings into pieces small enough to allow them to pass through a ¼-inch screen, and does it automatically underneath the water. The shredded screenings pass on through the plant, settle out with the rest of the sludge and digest with it, adding little to its bulk.

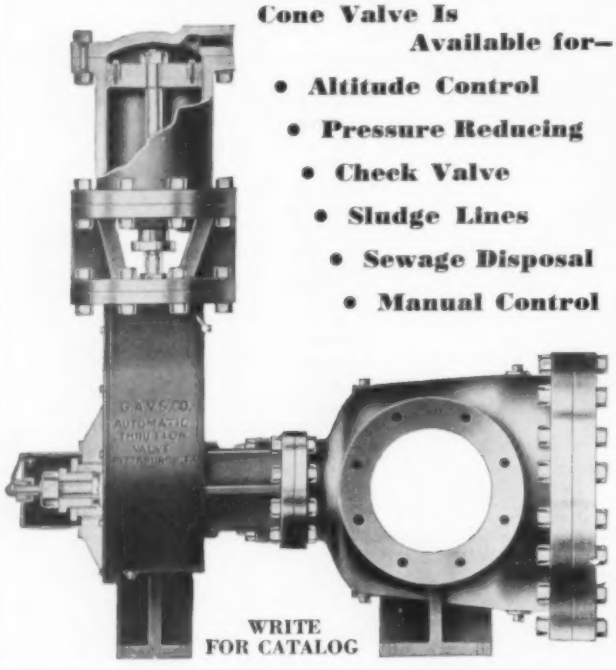
The "Chicago" Comminutor, made by the Chicago Pump Co., 2319 Wolfram St., Chicago, Ill., is a self-contained machine that functions both as a sewage screen and as a shredder. The machine consists of a main structural element of cast iron. A vertical motor with a gear reducer is mounted on top of the column and drives a slotted cast iron drum. A comb-shaped cutting plate of machinery steel is mounted vertically on the column, with the ends of the comb teeth opposite the drum slots and just clearing the surface of the drum. This effects a wiping action to keep the drum slots clean. Cutting-teeth mounted on the circumference of the drum pass between the comb teeth. A shearing action here cuts up the solids in the sewage. This machine does not pulp or pulverize the screenings, but merely cuts them up in small pieces so that they will pass through the plant without causing any trouble.

Representative Comminutor installations include Hot Springs, Ark., Boulder, Colo., Edwardsville, Ill., McComb, Ill., Flora, Ill., Goshen, Ind., Waverly, Iowa, Ackley, Iowa, Lindsborg, Kans., Hays, Kans., Owosso, Mich., Paw Paw, Mich., Battle Creek, Mich., Jackson, Mich., Bemidji, Minn., Springfield, Mo., Marshall, Mo., Neosho, Mo., Crete, Nebr., Trenton, Nebr., Holdredge, Nebr., Oklahoma City, Okla., Durham, N. C., Burlington, N. C., Monroe, Wis., Burlington, Wis., and Marshfield, Wis.

The Chicago Comminutor is described in Bulletin 128-H which may be secured from the manufacturer free of charge.

THE CHICAGO COMMINUTOR FOR DISPOSING OF SEWAGE SCREENINGS

and now . . . . .
the "World's Best" Thru-Flow Cone Valve



Cone Valve Is Available for—

- **Altitude Control**
- **Pressure Reducing**
- **Check Valve**
- **Sludge Lines**
- **Sewage Disposal**
- **Manual Control**

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For more than 30 years Golden-Anderson has been known as the manufacturer of the "World's Best" Automatic Valves.

Now, Golden-Anderson offers you the supreme development in the Thru-Flow or Cone type Valves.

In the new Golden-Anderson Thru-Flow Valve the plug is unseated axially, rotated, and reseated axially, all in one free and frictionless operating movement and drop tight in either open or closed position; this is accomplished by means of a simple and sturdy patented toggle type rotor mechanism which is encased in a bath of oil in the operating head.

The valve itself is just as simple and sturdy, the full flow plug being stronger than pipe of the same area. And each unit—plug, valve body, operating head, and automatic control—is separate and distinct, designed so that any one unit may be removed from the line without disturbing other units.

The valve stem may be repacked under pressure. The operating head cylinder stem may be repacked without draining the oil bath.

There are no balance ports, grooves, or cams in the valve. There are no cams, no line contacts, no stem screws in the operating head.

The automatic control may be any one of the several patented mechanisms which have established Golden-Anderson as the manufacturer of the "World's Best" Automatic Valves.

If you want increased efficiency and unfailing automatic control, ask the Golden-Anderson Engineers for further details.

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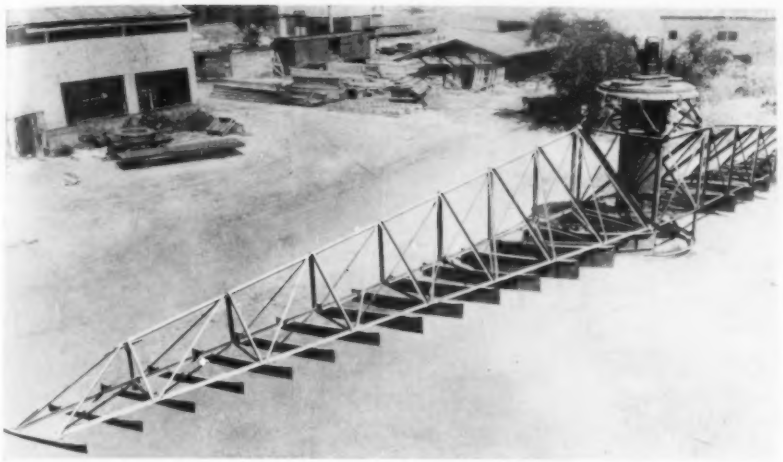


ONE OF THE SEVENTY-TWO 125-FOOT DORR CLARIFIERS FOR THE ALL-AMERICAN CANAL DE-SILTING PROJECT

Contracts Awarded for Clarifiers for Reclamation De-Silting Project

Contracts have been let by the Bureau of Reclamation of the Department of the Interior to the Dorr Co., Inc., 247 Park Avenue, New York, for mechanical sedimentation equipment for the world's largest de-silting plant, to be built on the Colorado River about 15 miles northeast of Yuma, Ariz., at the Imperial Dam, 250 miles below Hoover Dam. There will be 72 Dorr clarifiers, each 125 feet in diameter and similar to those used extensively for sewage treatment and water purification. They will remove 50,000 to 70,000 tons of suspended silt daily from close to 8 billion gallons of turbid Colorado River water. The clarified water overflowing from the Dorr clarifiers will flow 210 miles through the All-American Canal to irrigate 1,000,000 acres of arid land in California. The silt removed will be returned to the river below the diversion dam.

Paul Ivy Killed in Air Crash

Returning from a business trip in Mexico by airplane, Paul A. Ivy, Sr., Vice-President in Charge of Sales, National Cast Iron Pipe Co., of Birmingham, Ala., was killed when the plane crashed, on August 14. Mr. Ivy was also Chairman of the Cast Iron Pipe Research Association. He entered the cast iron pipe business 35 years ago as a stenographer with the Dimmick Pipe Co. He transferred to the Sales Department of that company and later joined the Sales Department of the American Cast Iron Pipe Co., of which he became Vice-President and Sales Manager, being associated with them for 23 years. He became Vice-President of the National Cast Iron Pipe Co., a subsidiary of James B. Clow & Sons, Chicago, Ill., in 1928 and held this position up to the time of his death. He was recently appointed a member of the Manufacturers' Committee of the United States Chamber of Commerce.

New Large Slip Ring Motor for New York City

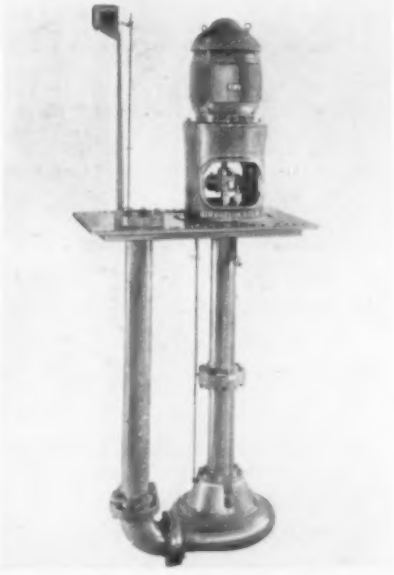
The first two of a new series of large 75-hp. vertical slip ring motors, recently introduced by the Harnischfeger Corp., Milwaukee, Wis., have been installed by the New York City Department of Water, Gas and Electricity at the Horace Harding Boulevard plant. These motors depart from conventional design for enclosed, fan-cooled types, with the cooling fan located on the shaft extension at the top, opposite the driving end, and slip rings at the bottom end with the dust-tight covers and a free outlet for cooling air.

The design was originally conceived to provide special protection under heavy service in direct connection with centrifugal sewage pumps. The motors are rated at 75 hp., 690 rpm., 208 volts, 3-phase, 60-cycle for continuous duty with 55-degree temperature rise. The thrust load is taken at the top by a double-row, deep groove radial ball bearing. The lower bearing is also double-row of the self-aligning type.

Features of Non-Clogging Sewage Pumps

Non-clogging type pumps are designed to handle liquids containing varying amounts, sizes and kinds of solids. Their success on different types of installations, such as pumping sewage and drainage, is pronounced; however, failure may result from binding due to some conditions in the pump itself. The Kimball-Krogh Pump Division of the Victor Equipment Co., 1010 East 62nd Street, Los Angeles, Calif., has designed non-clogging sewage pumps with impellers of the "two-vane" semi-open type without wearing rings. The vanes are of concave cross-section and of a distinctive form, producing an efficient flow of liquids and solids. The hub disc, which forms the back of the impeller, has as large a diameter as practical to give maximum strength to the vanes. It corresponds to the shroud of an enclosed type impeller. Shallow vanes, which are practically an extension of the main vanes, are formed on the back of this disc. To prevent solids from accumulating and binding between the open face of the impeller and the wall forming the discharge casing, a combination of three important features has been incorporated into the design of Victor-Kimball-Krogh pumps. These features are: (1) the lip formed on the suction plate, extending into the eye of the impeller; (2) the concave cross-section of the vanes; and (3) the design of the angle and curve of the vanes.

The lip has a tendency to guide the solids toward the center of the vanes at the entrance of the impeller eye. In case some of the solids tend to flow toward the casing wall, the concave shape of the vanes will wipe them from the wall and back into the center of the flowing stream. These two features take care of stringy material and solid materials. Rubber and hair, which may not follow the center of the current, may be caught between the vanes and adjacent casing wall. They will not have a tendency, however, to roll up along the vanes and bind as has been the case in some previous designs. The particular angle, curve and shape of the vanes have a tendency to force such materials back into the center of the stream. On the reverse side of the impeller, accumulation and binding are prevented by the shallow vanes on the side of the hub disc. These vanes have a pumping action similar to that of the main vanes, so that solids are prevented from flowing into the low-pressure area back of the disc. These vanes create a vacuum on the packing gland which also aids in keeping solids from collecting between the shroud of the impeller and the pump case. When solids do work behind the disc while the pump is idle, they do not remain there long after the pump is again started. The vanes prevent an accumulation and gradually work the solids back into the main channel.



THE VICTOR-KIMBALL-KROGH NON-CLOGGING SEWAGE PUMP

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or This?

You pay for Public Safety

whether you get it or not!

Add these up. America's annual cost of traffic accidents, $2,500,000,000! Burglary and theft, $250,000,000! Tremendous fire losses! . . . Against these balance the relatively insignificant sums now spent for *Public Safety* equipment . . . better street lighting, police radio, efficient traffic control, efficient fire alarm systems. Does it pay? Let's see. Better street lighting alone could *save* an estimated $275,000,000 — many times the cost of the equipment . . . These facts apply, on a smaller scale, to your own community. Worth investigating? Graybar can help you with unbiased advice . . . dependable equipment. Write us — or call your nearby Graybar house for information on all types of Public Safety electrical equipment.

GraybaR *Electric Company*

GraybaR Distributed and guaranteed by GraybaR Electric Company

OFFICES IN 77 PRINCIPAL CITIES. EXECUTIVE OFFICES, GRAYBAR BUILDING, NEW YORK, N. Y.

During October we hope you will remember to mention THE AMERICAN CITY

A Floor Finish for Fire-Houses

Most fire-house floors are of concrete, which is hard, brittle and porous. Unless concrete is properly sealed, it sheds a harsh type of dust under both pedestrian and vehicular traffic. The small gritty particles do much damage because of their abrasive action. The vacuum action of large tires carrying heavy trucks on fire-house floors, and the discoloring action of oil and water, make it necessary to preserve these floors.

Dolcorock is a moisture-resisting finish which penetrates and seals the pores of concrete, forming a high surface coat which is impervious to water, oil, alkali and ordinary acids, and which stands up under heavy traffic.

Troweled concrete floors require two coats of Dolcorock, one gallon of which covers 450 square feet. Cast concrete floors are more porous and usually require three coats, and one gallon covers 350 square feet. Dolcorock is a pale, transparent amber, which can be modified to the desired shade of any standard color with Dolco pigment base.

To refinish old cement floors, it is first necessary to remove grease and grime, which is effectively done with the Ban Soaker. The floor is wet with hot water, the cleaning material is sprinkled on and then scrubbed with a stiff fiber brush and rinsed several times with cold water. When the cement is very heavily saturated, two or three treatments may be necessary. If the surface is still dark and discolored, Dolco bleach may be applied in a solution of three pounds to the gallon of hot water, which is allowed to soak into the floor for fifteen to twenty minutes and then rinsed off with plain water.

When cement has been painted previously, a concentrated solution of Ban or Ban Soaker, 8 ounces to the gallon of hot water, should be applied with a stiff fiber brush, the number of applications depending upon the depth of the paint or varnish. These should be followed with several rinses of plain water, after which Dolco neutralizer should be applied to counteract any remaining traces of alkali.

Descriptive literature and a price list of Dolco products may be secured from C. B. Dolge Co., Westport, Conn.

A Fire-Boat with Many New Features

A fire-boat which has been designed by Gielow, Inc., naval architects and engineers, New York City, is believed by the designers to be the logical size for any and all of our waterside cities. The 85-foot length of this boat permits it to get into places that could not be negotiated with a larger vessel, and the beam can be increased and the draft decreased for cities where the water is shallow. Designed primarily for 7,500 gallons per minute at 150 pounds pressure, the capacity can be increased by the additional pumping units.

The fuel tanks are completely surrounded by water, and all the necessary equipment for fighting a fire from the waterside is included on the boat. It is proposed to use six Sterling Petrel engines built in 6 cylinders with a rating of 175 horsepower at 1,800 rpm, made by the Sterling Engine Co., 1252-1274 Niagara Street, Buffalo, N. Y. There will be three pumping engines, one main propelling engine, and two wing propelling and pumping engines. On arrival at a fire, the two wing engines are de-clutched from the propeller and clutched to centrifugal pumps. The single center engine then maneuvers the boat at the fire, while five engines pump the water.

Extensive Improvements in Snow-Plows

Several new models of Good Roads Champion snow-plows, and many improvements in the present well-known models, have been announced by the Good Roads Machinery Corporation, Kennett Square, Pa. The illustration shows a Model 32-B on a 5-ton four-wheel-drive truck. It represents the most modern development for high-speed snow removal. This type of one-way plow is primarily for use in snows of fairly even depth where conditions make it necessary to remove the snow quickly. Under such conditions it is speed that counts.

Model 32-B is equipped with dual automatic safety blade trip—insuring safety to operators and equipment at any speed; a semicircle of strongly trussed, all-steel construction; a powerful push-frame having swivel connection to moldboard and permitting free oscillation of the plow to conform to surface contour. The use of the semicircle provides for a selection of plowing angles, adjustments similar to those on reversible blade plows, and allows changing the pitch or slope of the blade to meet varying conditions of wet or dry snow. The moldboard is tapered and so shaped as to form an inverted channel along its top. The snow, removed by the bottom section of the blade, is carried easily along this top-channeled section, and is discharged thinly over a wide area instead of leaving a heavy windrow to be moved back by succeeding cuts. The curved upper section of the plow blade, projecting well forward, forms an effective snow shield that prevents any snow from flying back to clog the radiator and to obstruct the operator's vision. This type of plow is obtainable in several models suitable for trucks of from 1½ tons capacity to the large heavy-duty truck.

Scheinert Appointed Branch Manager of Rensselaer

Albert G. Scheinert has recently been appointed Sales Manager of the Pittsburgh Branch of Rensselaer Valve Co., Troy, N. Y., with headquarters in the Oliver Building.

Windsor Morris Dies

Windsor Morris, President of the Morris Machine Works, Baldwinsville, N. Y., died Monday, September 2, 1935, at the age of 64. Mr. Morris was born in Baldwinsville and was a graduate of Cornell University. He entered the machine works at an early age and was employed in all departments. He became President of the company 15 years ago upon the death of his father, President 40 years.

Caterpillar Personnel

The Caterpillar Tractor Co., Peoria, Ill., has announced that Paul Weeks, formerly Manager of the Caterpillar Washington office, will succeed Walter H. Gardner as Manager of the Special Sales Division. Assisting Mr. Weeks will be C. L. McMullen, in charge of engine sales to manufacturers, and G. E. Spain, in charge of power unit sales to distributors and engine dealers.

The Special Sales Division of Caterpillar was organized about four years ago to merchandise the company's engines.

THE GOOD ROADS CHAMPION MODEL 32-B SNOW-PLOW

SODIUM HIGHWAY LIGHTING

an Investment in Safety!

Increasing speeds and heavier traffic today make highway illumination a serious consideration.

Lighting engineers have put years of study and research into this lighting problem. Many test installations have been made. From the beginning Westinghouse has been closely identified with this problem, and today offers complete equipment that provides practical, economical and efficient highway illumination with the new Sodium Vapor Lamp.

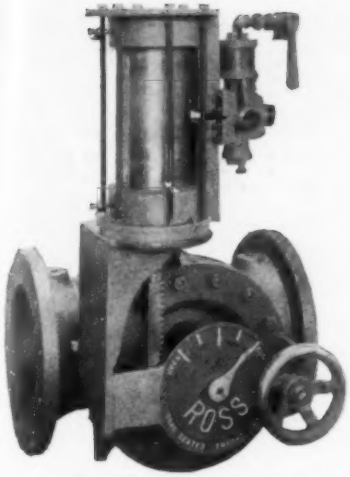
This close association of its engineers with the development of this modern highway illumination recommends Westinghouse to you. Write for the free Sodium lighting equipment catalogs. Or, better still, request a free study of your highway lighting problems by the Westinghouse advisory staff of skilled engineers.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
Lighting Division
Edgewater Park Cleveland, Ohio

WHEN YOU THINK OF *Lighting* THINK OF

Westinghouse

During October we hope you will remember to mention THE AMERICAN CITY



THE TROJAN DUAL-SEATED THROAT VALVE WITH HYDRAULIC CONTROL

A Dual-Seated Throat Valve

The Trojan dual-seated throat valve, which may be hydraulically, electrically or manually controlled, and used as an altitude, check, emergency stop, or free discharge valve for water or sewage, is, as the name implies, a throat valve having two seats. Either of these seats, at the discretion of the operator, may be used for closure with or against pressure. The valve may be assembled as a venturi or with a standard size case to take a plug opening the same size as the pipe.

The valve is made with a cast iron body and bronze seats, and with all wearing and moving parts of bronze, stainless steel or monel metal, unless otherwise specified. The pilots and hydraulic engine attached for automatic operation are all bronze assemblies.

The valve is assembled with a plug or rotor, and designed so as to eliminate the lifting operation which is necessary in designs with the cone plug assembly. This Trojan dual-seated throat valve is made by the Ross Valve Manufacturing Co., Troy, N. Y.

Chapman Valve and Pelton Water Wheel Companies Consolidate

An agreement has just been completed between the Chapman Valve Manufacturing Co., of Indian Orchard, Mass., and The Pelton Water Wheel Co., of San Francisco, Calif., a subsidiary of the Baldwin Locomotive Co., which involves an interchange of patents, manufacturing facilities and sales efforts on valves for water-works purposes. This arrangement also consolidates the engineering and research data of both companies and makes available to engineers the combined experience of many years of service in the water-works field.

The Pelton Water Wheel Co. was established in 1880 and is the only manufacturer on the Pacific Coast of a complete line of hydraulic equipment. The Chapman Valve Mfg. Co., manufacturers of valves since 1874, has by various consolidations and agreements during the past few years added to its line the products of several other manufacturers.

This agreement with the Pelton Water Wheel Co. gives to each company a complete line of special and standard equipment for water works, pumping plants, filtration and sewage-disposal plants.

Iron Salts in Sewage Treatment

A collection of worthy papers on the use of iron salts in the treatment of sewage have been gathered together by Wallace & Tiernan Co., Inc., Newark, N. J., in its recent Technical Reprint No. 465, copies of which may be secured direct. Among the papers, all of which have appeared in the technical press, are "Chemical Precipitation Processes," by Linn H. Enslow; "The Use of Chemicals in the Treatment of Sewage," by F. M. Veatch; "The Shades Valley Chemical Precipitation Plant at Birmingham, Ala.," by H. H. Hendon; and "Chlorinated Iron Solves Odor Nuisance and Improves Digester Performance," by I. Russell Riker.

A New Lighter Motor Grader

A Junior patrol motor grader which provides an inexpensive unit for maintenance work in townships, counties, cities and villages has been announced by the Galion Iron Works & Manufacturing Co., Galion, Ohio. This grader has full hydraulic operation for raising and lowering the blade and scarifier, taking the hard work out of motor-grader operation. Only a slight pressure forward or backward on the three short-range levers makes all adjustments.

The hydraulic pump which furnishes power to the operating cylinders is located at the rear of the grader and is completely shielded and protected, yet quickly accessible for inspection and repair. It is driven by a power take-off from the tractor motor. The operator standing at the rear of the machine or sitting on the upholstered seat within the all-steel compartment has a good view of the work ahead as well as of the blade and scarifier.

The frame, weighing 17.25 pounds per foot, is well braced and reinforced. The circle is built of railroad rail and reinforced to eliminate chattering. An 8-foot moldboard and blade are regular equipment. Power is furnished by a McCormick-Deering I-12 industrial power unit which develops 21 hp at 1,800 rpm. Three forward speeds are available with throttle control.

This unit may be used effectively for fast work in removing light snows from city streets.

THE GALION JUNIOR PATROL MOTOR GRADER

New Pillars for Mounting Fire-Alarm and Police Boxes

New combination standards for mounting fire-alarm and police signal boxes, and consisting of ornamental cast iron bases with fluted steel shafts, have been announced by the Gamewell Company, Newton, Mass. The steel shaft is pressed from 14-gage or heavier sheet steel. The shaft is approximately 6½ inches in diameter where it is attached to the base and tapers evenly to the top collar, which has an approximate diameter of 5½ inches. The upper shaft is similar in construction to the lower shaft and is approximately 5 inches in diameter where attached to the top ornament and tapers evenly from this point to the globe fitter.

THE NEW GAMEWELL STANDARD

The pressed steel shaft offers greater protection to boxes, because it will bend but not break from ordinary collisions. It is more economical to maintain, since the pedestal is made up of a number of pieces, each of which can be easily replaced if damaged, without changing the entire standard. Another advantage is the interchangeable parts, which can be utilized with other parts to build up a standard for any type of fire-alarm or police box requirement. The standards are attractive and harmonize with street-lighting and traffic-signal standards of modern design.

Godbey Appointed Kennedy Representative

The Kennedy Valve Manufacturing Co., Elmira, N. Y., has announced the appointment of William Godbey as its representative in Kansas, Nebraska, western Missouri, and southwest Iowa. Mr. Godbey will handle the sale of Kennedy iron body and bronze valves, fire hydrants, malleable iron and bronze screwed fittings and flanges. His headquarters will be in Kansas City, Mo.

Everything you need in street lighting

The SUPERLITE LUMINAIRE

The ESTROLITE LUMINAIRE

Select **L-M** Street Lighting Equipment for your next installation. Choose from a complete line of Standards, Luminaires, Brackets, Accessories, well designed, well made, dependable.

Consult the L-M Catalog and call in the L-M Illuminating Engineer.

BETTER LIGHT BETTER SIGHT WITH L-M EQUIPMENT!

LINE MATERIAL CO

SOUTH MILWAUKEE, WISCONSIN, U. S. A.

When you write for that catalog, kindly mention THE AMERICAN CITY

Outdoor Lighting

A Section of *The American City*
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Lighting Units That Are Not Hard to Look At

Worth Selecting with Discrimination, Because They Last a Long Time, Are Very Visible, and Represent the Taste of the Locality

THE latter half of the route from the shore resorts of New Jersey to the Holland Tunnel to Manhattan is as uninspiring as one would wish to see if he were assigned to hunt out uninteresting routes. On the way home from the ocean, there is little to engage the interest, except the ceaseless streams of traffic, and attention could be captured from time to time by such trivialities as the "lamp-posts."

Along this necessitous route from the Jersey shore or, worse, from the intermediate towns on, the standards are the unpainted wood telephone or electric lighting poles.

Time comes when the spinning wheels of your car hit the approach to the General Pulaski Skyway. This approach is a long concrete viaduct with standards on both sides. Though it is daytime, one imagines how brilliant must be the night scene, until it becomes evident that between each pair of lamps there are two lampless standards. This is probably due to a forward-looking policy which contemplates more intensive lighting when economic conditions warrant. On the monumental Skyway, though there is a lamp on every standard, the luminaire looks small.

Now a lighting standard and its luminaire, the unit, is a triviality only when it is unattractive, and then it is an eyesore. There are four schools of thought, with intermediate shades among those who select street and highway lighting equipment: (1) that the lighting system is for night use, and therefore its daytime appearance is of small consequence; (2) that though the light is the major consideration, some thought should be given to making the standard either inconspicuous or actually graceful; (3) that standard and light are of equal esthetic value, and each should be as completely efficient as possible, just as a living-room lamp must be an ornament during the day as well as a light at night; (4) that outdoor lighting, if not a luxury, is a miserly necessity to which both beauty and efficiency are wastes.

All will concede that this is not a moment to advocate large expenditures for handsome lighting units. It is a moment, ever present, to suggest that when installing new units and in replacing existing lines, thought be given to making the system attractive by day as well as adequate at night. This can be accomplished by the use of taste, which must frequently be retained under the title of illuminating engineer or architect. Nor will this retainer necessarily add to the first cost of the system. In fact, it is just as likely to decrease the first cost through the selection of a simple design with a low manufacturing cost.

It is one thing to be finicky or fantastic and quite another to perform a job with keen interest in the work and in the people for whom the work is being done. The men who select lighting—standards, lamps, reflectors and refractors—are doing it for the public. More than that, as it will appeal to some, they are doing it for themselves—for they are of the public and must ride by the lighting which they and others similarly placed have provided for all the motorists. They should not hesitate to be hard to please. They should say: "We want new lights on fifteen miles of Route 16; submit your designs to the engineer." Where possible, he passes on the designs of the various manufacturers, selects those best available under the appropriation, suggests simplifications toward lower costs, gets the designs approved by the Commission, and lets the contract.

Distinctive Municipal Lighting Systems

Before the depression settled down dully over the land, there were municipalities, notably in California, that evinced such interest in their street lighting that they ordered custom-made standards and luminaires symbolic of the town. They cost a little more than store standards, but standards stay put for many years. In the January, 1929, issue of this magazine, page 163, the case of Riverside, Calif., was presented under the now neglected caption: "Businessmen's Association Fathers New Lighting in Downtown District." E. Sylvan Jackson, Secretary, tells how the project was put over, and predicted: "It will be a distinct business advantage. The corporation manufacturing the standards will make Riverside a show place for prospective customers. . . . With standards 22 feet tall and 17 feet to the center of the light, eight standards to the block, each with two 250-watt lights, adequate lighting is assured." Riverside has traditions of quaintness which ever the old lighting units, mission style with an Indian rain cross, maintained. The new standards, of the same style, weighed more than a ton each, and were surmounted by a real bronze bell. Sounds fantastic now; yet the entire system cost only $33,000, which an annual charge of $5,000 would already have retired in these eight years.

Voters judge your administration by the good it does

MERCURY-VAPOR STREET LIGHTS IN BROOKLYN

The distinctive light of these G-E lamps draws shoppers

At Albee Square, Brooklyn, is another excellent example of increased business from modern lighting. The Downtown Brooklyn Ass'n, working with the Brooklyn Edison Company, installed new G-E mercury-vapor street lights.

This combination of a high-intensity mercury-vapor lamp with an incandescent lamp is the newest thing in "white-way" lighting for business streets. It gives a distinctive light. Your administration should consider this newest type of lighting. It will bring many favorable comments; it will increase business; it will mark your city as progressive. Brooklyn has found that people like this unusual lighting.

Let us send you a description of mercury-vapor luminaires—write General Electric Company, Dept. 6A-201, Schenectady, New York.

You pay for good street lighting whether you have it or not . . . with inadequate lighting, you pay in accidents, crime, and death

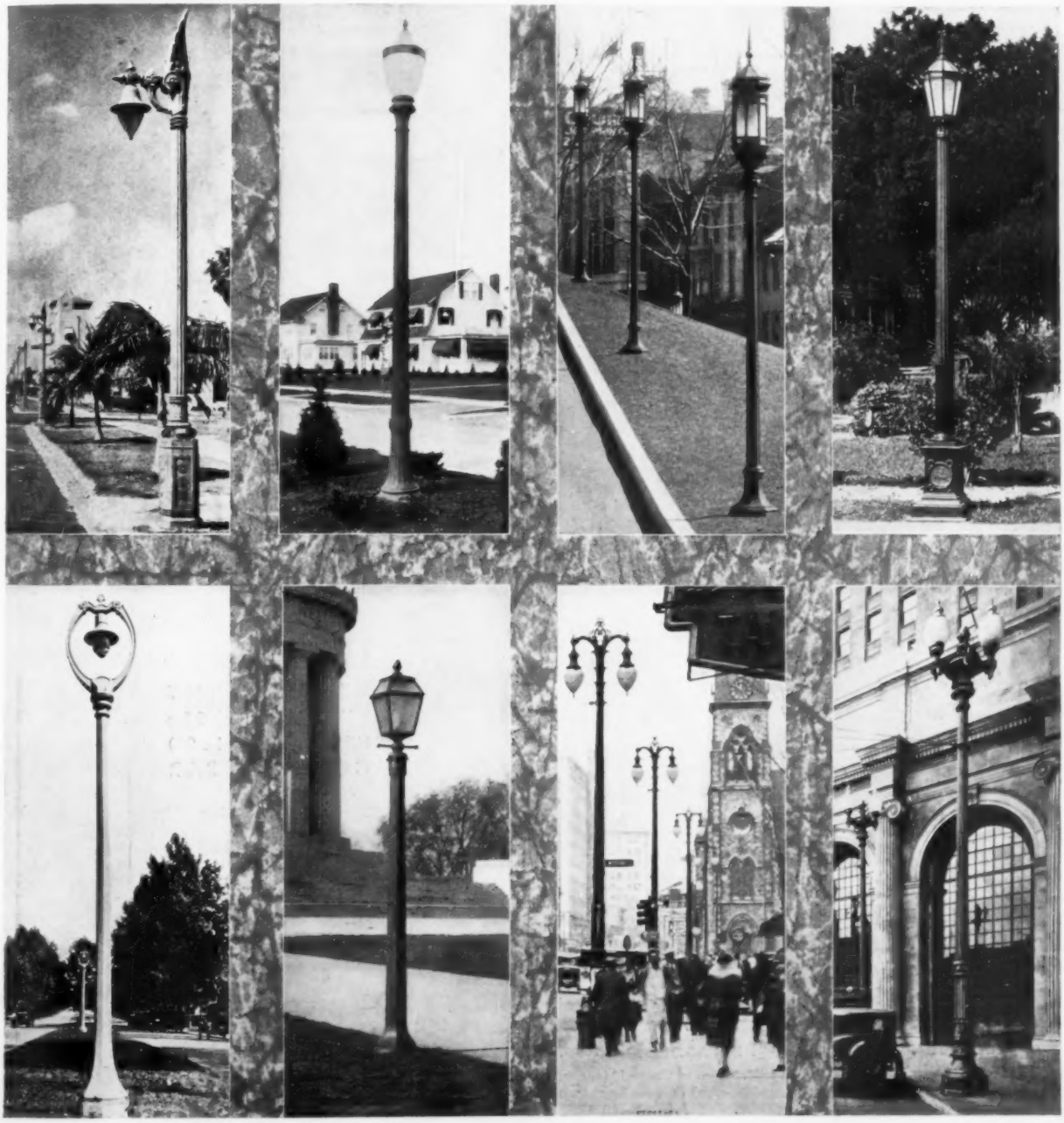
500-150

GENERAL ELECTRIC

Distinction can of course be attained without having to design the unit to fit the history of a town, county or state. A design that is excellent is suitable anywhere. Color is another factor in appearance, and interesting advances have been made in the technology of paint. There are paints that preserve and at the same time present an unusually appropriate appearance, that beautify while adding years of life to the lighting standards.

A Medley of Lighting Units to Be Seen N-S-E-W

THIS group of photographs hints at the broad variety of taste in lighting units and possibilities for a certain amount of standardization. From left to right, the first, third and fifth are Westinghouse units. The first, on Biscayne Boulevard, Miami, won a $1,000 prize in public competition some years ago. It is cast iron with Paragon pendant and Bi-lux reflector; mounted 18 feet and spaced 100 feet. Directly below it and in similar vein is a hollowspun standard at Kalamazoo. Third from left (at top) is a cast iron standard on the Capitol grounds at Harrisburg. The other units are General Electric units with poles made by the Union Metal Manufacturing Co. Second from left is on a center strip at Gloversville, N. Y. Fourth is at St. Augustine. Sixth is an all-bronze unit made by Union Metal for the George Rogers Clark Memorial Park at Vincennes, Ind. Seventh, at Detroit, and to be seen in numerous cities, typifies best practice for both illumination and maintenance, and here serves to carry the trolley line as well; mounted 26 feet 7½ inches. Eighth and last is at Cleveland, and was originally designed for Chicago, where many are installed.



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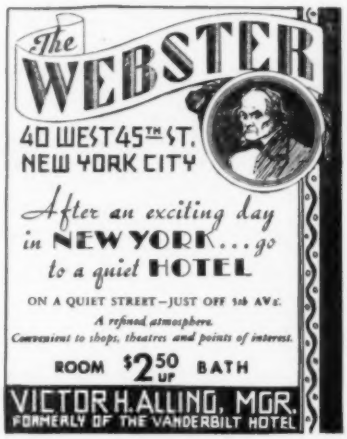
The President

ATLANTIC CITY, NEW JERSEY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After an exciting day in NEW YORK . . . go to a quiet HOTEL
ON A QUIET STREET—JUST OFF 5th AVE.
A refined atmosphere.
Convenient to shops, theatres and points of interest.
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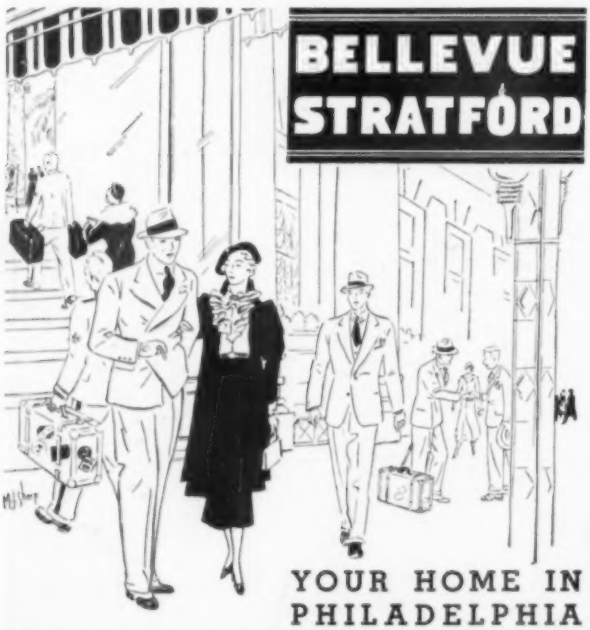
VICTOR H. ALLING, MGR.
FORMERLY OF THE VANDERBILT HOTEL



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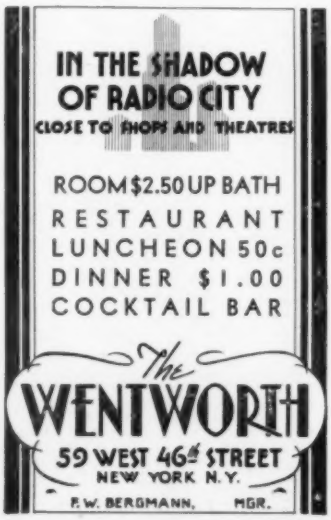
A hotel that lives up to its fine traditions . . . an unhurried hospitality reminiscent of an Older Philadelphia, and its charm . . . a cuisine that bespeaks the wizardry of world-famed chefs . . . plus every modern, thoughtful regard for your comfort, convenience and pleasure . . . all at most reasonable rates.

Claude H. Bennett, *General Manager*



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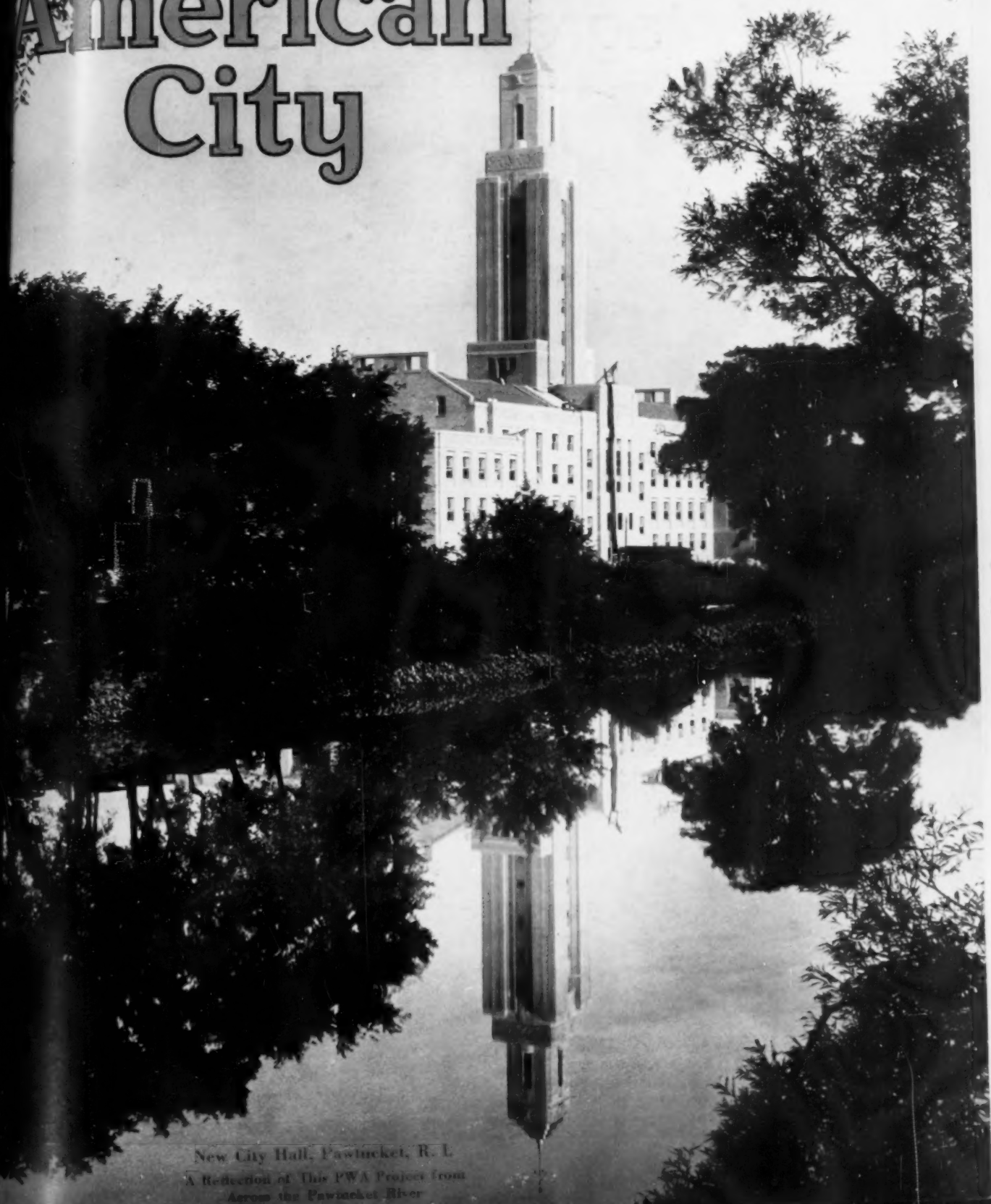

New City Hall, Pawtucket, R. I.
A Reflection of This PWA Project from
Across the Pawtucket River